

Muscle Anatomy

Muscle:
Latissimus Dorsi



Origin:
Thoracic spine (T7 - T12), ribs 9-12

Insertion:
Inferior angle of scapula and groove of humerus

Actions:

1. Stabilize lumbo-pelvic hip complex
2. Adducts, extends, and internally rotates humerus.
3. Decelerates flexion, abduction, and external rotation of upper extremity.

Inside this issue:

Understanding the Fitness Continuum	1
Hot Topics	2
Exercise of the Month	2
Strength Training for the Young Athlete	3
Chef's Corner	4
"Back" Page	5

Understanding the Fitness Continuum

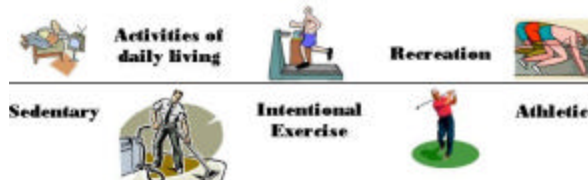
Over the past 15 plus years, we have been bombarded with medical experts, fitness professionals, and the media citing the benefits of exercise. You ask anyone in America and they should be able to tell you at least one benefit of exercise. The information is out there and we all know we should incorporate exercise on a daily basis. However the number of Americans who are overweight or obese is continually rising!! Obesity is even starting to impact our youth. Juvenile diabetes and obesity seems to be rising on a daily basis. Why? The lack of movement or exercise.

Many, if not most, of people who don't currently exercise either hate it, or do not know where to start. Fortunately the fitness continuum can be a big help. The Fitness Continuum is designed to allow individuals to move along in either direction depending on their motivation. Each category is defined below:

Sedentary— no exercise or movement at all. "Couch potato."

Activities of Daily Living (ADL's) - daily movement. Stairs vs. escalator, park further away from the store and walk in. Yard work, walking the dog, playing with your kids.

Fitness Continuum



Intentional Exercise— involves going to your cardiovascular-strength training. Goals will help determine how your exercise program works.

exercise— in the gym, doing circular exercise, and flexibility.

Recreation— golf, softball leagues, basketball leagues, flag football, etc. "Weekend warriors." This category is usually based on enjoyment of the activity and socialization of others with competition.

Athletics— Competition. These individuals base their exercise program on performance versus health benefits. Triathletes, cyclists, runners, swimmers, NASCAR drivers.

Movement along the continuum can go either way. Trying to find your comfort level along the continuum is the key. Being athletic is not the end all be all, it depends on your goals. If you are sedentary, increase your ADL's to gradually increase your movement and improve your health. If you are in the intentional exercise realm, try a recreational sport to try something different and add something new to your routine. Try entering a competitive athletic tournament if you are in the recreational category.

The point of all this is to not be stagnant or sedentary. Find your place along the continuum and you can be on your way to improving your overall health or fitness.

authored by dave radin

LOOK!

Did you know if you refer friends and family who sign up for a training package, you can receive complimentary sessions!! For more information, ask your trainer the next time you are working out, or call either the Mooresville or Cornelius locations for more information.

Fitness Quiz

What is the caloric equivalent of 1 Liter of Oxygen when using carbohydrates as the main fuel?

- A. 4.0
- B. 5.0
- C. 9.0

answer can be found on page 4

Hot Topics

Is Barefoot Better?

Chronic foot, ankle and knee injuries continue to plague athletes and active adults alike. Some experts suggest that the evolution of athletic footwear may have **increased the incidence of these injuries rather than protecting against them.**

As shoe companies continue to enhance heel cushioning to improve shock absorption, increase stability of the ankle, and attempt to reduce pronation, **the rate of injuries has increased.** This comes along with **epidemiological data, which shows that barefoot runners and people from "barefoot societies" have consistently fewer injuries to the foot, ankle and knee.**

According to Dr. Mel Siff in his text **Supertraining**, the **increased cushioning a shoe provides reduces the natural protective reflex of the plantar surface.** This reflex response has a couple of important roles. First, it prevents injury by decreasing the rigidity of the ankle, which would place increased stress on the ligaments, and allow for reduced peak force on impact. Second, **the reflex is responsible for allowing the nervous system to know the position of the knees and hips in order to stabilize the joints effectively.** Thus, this sensory awareness may affect the natural recruitment patterns of the muscles that produce and stabilize hip and knee flexion/extension. **As a result, Dr. Siff suggests that compression of any part of the sole during any closed-chain strength or explosive exercise (i.e. running, jumping, squats, etc) can cause general instability and consequent injury.**

In addition to interfering with the plantar reflex, **the height of the heel can shift the center of gravity forward** increasing stress on the knee and altering optimal patterns of movement, **which can make squats, dead lifts, lunges, and other closed-chain lifts unsafe.**

Although a long-term solution likely lies with shoe manufacturers there are a couple things you can do to help protect your lower body. **For example, during strength training wear a shoe with very little sole and no heel elevation.** A soccer, wrestling or ballet-type shoe may be best suited.

Shoe manufacturers have begun developing sneakers that mimic barefoot running with very little sole and limited lateral stability. In the meantime, Dr. Siff suggests that **we should attempt to spend more time barefoot** to maintain the sensitivity of the plantar protective reflex and reduce the impact of wearing shoes.

Supertraining. Mel Siff (2003) 466-467.

www.exerciseetc.com

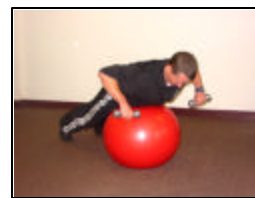
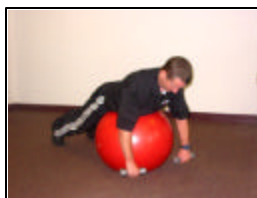
Exercise of the Month— Prone Row

Preparation:

- Lie on the ball in the prone position with legs straight and toes on the floor.
- Arms straight toward ground with palms facing toward hips.

Movement:

- Engage inner abdominals and pelvic floor muscles to assure spinal stabilization.
- Bend elbows and pinch shoulder blades together.
- Slowly lower to start position and repeat.
- Repeat



FACTOID

Female athletes are 4-8 times more likely to suffer an ACL injury versus their male counterparts due in part to a greater Q-Angle.



Trainer Spotlight



Lamail Spain, MS Personal Trainer

Lamail holds a Bachelor's of Science Degree in Athletic Training from Wingate University and a Masters of Science in Health, Park and Recreation with a focus on Sports Psychology. As an active member of various professional organizations that include the National Strength and Conditioning Association, American College of Sports Medicine and Advancement of Applied Sports Psychology, Lamail stays on top of the latest trends and techniques in the industry. Lamail's blend of sports medicine, sports psychology and strength and conditioning knowledge and experience, as well as his experience as a standout college football player, has made him one of the industry's top trainers.

Strength Training for the Young Athlete

Strength Training is not training to see how much weight one can push around the gym. Simply stated, Strength Training is a method of conditioning that will increase an individual's ability to handle the physical demands of activity. Strength Training may involve the use of weights or other external resistance (bands, medicine balls, pulleys, etc.), it may involve body weight (push-ups, pull-ups, sit-ups, etc.) and it may involve the use of body weight and ground forces (skipping, hopping, jumping, etc.)

There is an interesting trend in the physical activity of today's youth, a trend that makes the integration of a strength training program more important than ever. Today, kids are specializing in a particular sport at an early age. Kids are picking one sport and playing it year round. Because of this specialization and the fact that kids don't engage in "free play" the way they used to, young athletes today aren't developing the fundamental motor skills, and musculoskeletal balance necessary for peak performance and injury prevention.

We all want our young athlete to be as successful on the field as possible. Coaches spend a great deal of time with young athletes on skills and drills. Parents enroll children in speed and agility camps and provide private instruction hoping to develop a better player. While skills and drills and sport specific instruction may make the player more proficient kicking a soccer ball or throwing a baseball, chances are they won't make them a better overall athlete, and they certainly won't decrease the chance of sport related injury. Repetitive training of only specific sport related movements tends not only to limit performance, but sets the stage for faulty movement patterns and overuse injury. In most sports, common sites for overuse injuries include the heel, ankle, and knees. You can add shoulders and elbows to that list for the young baseball, tennis, and volleyball player. Well designed Strength Training programs will not only make muscles stronger but will strengthen other supporting tissues like bone, ligaments and tendons thus decreasing the chance of acute injuries such as sprains and ligament tears.

Health organizations such as the American College of Sports Medicine (ACSM), The American Academy of Pediatrics (AAP) and the National Strength and Conditioning Association (NSCA), have helped put to rest the long held belief that strength training for children is unsafe and ineffective. These organizations now support the participation of children in appropriately designed and competently supervised strength training programs.

At what age can a child begin a strength training program? If a child has the capacity to follow directions, then the child is old enough to follow a properly designed and supervised age-appropriate strength training program. Protect your young athlete's future and let them bring their game to the next level.

authored by bill scibetta

What's That???

Be creative in finding ways to incorporate physical activities into your day. For example, **increasing your activities of daily living can go a long way to improving your overall health.** These activities include, but are not limited to: walking the dog, stairs, yard work, etc.

Quiz Answer:

B. 5.0

Carbohydrates give a caloric equivalent of 5.0 kcal/L of oxygen. That is more energy than fat (4.7 kcal/L) and protein (4.5 kcal/L).

When a 50/50 mixture of fat and carbohydrate is used, the caloric equivalent is 4.85 kcal/L of oxygen.

Chef's Corner...

Irish Beef Stew

This recipe serves: 8

Ingredients

3 pounds beef stew meat, (top round) cut into 2-inch cubes
salt to taste
freshly ground black pepper
flour for dredging
2 tablespoons olive oil
1 large yellow onion, diced
4 cloves garlic, minced
2 sprigs thyme
1 bay leaf
12 ounces beer, ale or lager
1 tablespoon Worcestershire sauce
2 cups diced, canned tomatoes, with their juices
4 cups low-sodium beef broth
4 large carrots, peeled and cut into 1/2-inch pieces
2 large russet potatoes, peeled and cut into 1/2-inch pieces
1 cup frozen peas
2 tablespoons chopped fresh parsley



Cooking Instructions

- Season the beef with salt and pepper. Dredge it in flour and shake off the excess.
- Heat the olive oil in a heavy soup pot or Dutch oven over medium-high heat. Sear the meat on all sides. Adjust the heat so that the meat browns well, but does not burn.
- Add the onions, garlic, thyme and bay leaf and cook 2 minutes more. Add the beer. Stir with a wooden spoon to release any caramelized bits that may be stuck to the bottom of the pan and cook until the beer is almost completely evaporated.
- Add the Worcestershire sauce, the tomatoes with their juices and the beef broth and bring to a boil. Adjust the heat so that the stew simmers. Cook until the meat is tender, about 1 hour.
- Add the carrots and potatoes and cook until the vegetables are completely tender, about 15 minutes more. Add the peas and continue cooking until they are warmed through, about 5 minutes.
- Adjust the seasonings with salt and pepper, remove the thyme sprigs and bay leaf and serve in a deep tureen garnished with parsley.

Serving Size: 1 bowl

Nutrition Information

Number of Servings: 8

Per Serving			
Calories	445	Carbohydrate	35 g
Fat	11 g	Fiber	5 g
Protein	42 g	Saturated Fat	3 g
Sodium	611 mg		

www.foodfit.com

**Our Training
Philosophy:
"M.P.E.
TRAINING"
MAXIMUM
PHYSICAL EF-
FICIENCY**

Precision Fitness

8311-4DMagnolia EstatesDr
Cornelius ,NC 28031
Ph. (704)-895-2857
Fax (704)-892-7068

484 Williamson Rd
Suite B
 Mooresville, NC 28117
Ph. (704)-662-8664
Fax (704)-662-6602

info@ncprecisionfitness.com

We're on the Web!
www.lakenormanfitness.com

When Exercising Right Looks Wrong III



Hopefully, if you read my last article I got you thinking. Thinking about different ways to train, not necessarily using machines, but using your entire body with each exercise. We talked about the changes exercise science has brought about and the risks of continuing to train the way we currently do. Our bodies, as I alluded to, were not designed to be cramped into a one size fits all machine and forced to move in a specific pattern. That pattern unfortunately is single jointed, and those of us in the know understand that even putting food in your mouth requires 3 major and around 24 smaller joints. We need to train the same way that our body was designed to operate.

Back exercise is one of the scariest groups of improper exercise concepts that I know of. To fully understand the back is way beyond the scope of this article. The 'back' is considered the Thoracic and Lumbar Spine and all the supporting muscles. Some of these muscles are global, meaning they assist with movement of the trunk / torso. Some are stabilizers, meaning they aid in keeping the spinal joints in the proper alignment. Many of the muscles act as synergists, they help other muscles do their job. Many of the back muscles have numerous tasks. The Latissimus Dorsi or lat, for example is the only muscle in the body that has direct attachment on the shoulder and pelvis. Many of the thoracic or middle back muscles cross the thoracic and lumbar spines and attach into the pelvis and sacrum.

The spinal column, devoid of its musculature, has been found to buckle at a load of only 90 newtons (about 20 pounds) at LS.3,4 However, during routine activities, loads 20 times greater are encountered on a regular basis. Panjabi says, "This large load-carrying capacity is achieved by the participation of well coordinated muscles surrounding the spinal column."¹ Spine stability is greatly enhanced by co-contraction of antagonistic trunk muscles (e.g., abdominal and extensor muscles). Co-contractions increase spinal compressive load, as much as 12% to 18%, or 440N, but they increase spinal stability even more by 36% to 64%, or 2,925N.⁶ But when load is at a minimum, such as when the body is relaxed or a task is trivial, the motor control system is often "caught off guard" and injuries are precipitated.

Low back injury has been shown to result from repetitive motion at end range: According to McGill, it is usually a result of "a history of excessive loading which gradually, but progressively, reduces the tissue failure tolerance."

What the research shows is actually simple, we continually load our body, in faulty posture, to the end range of movement. This increases the forces on the spinal joints by hundreds of pounds. Over time the joints become so repetitively overstrained and damaged that injury from a trivial task is inevitable.

So what exercises help or hurt the back? The first thing to understand is that the paraspinal muscles are dominated by slow twitch muscle fibers which means there is no need to work extensor muscles for strength, rather focus on endurance or time under tension. This equates to stabilization type exercises for back strength, not thousands of repetitions of back extensions on various types of equipment. (spine 93) Try performing quadruped opposite arm and leg extension exercises, vary your hold times to target the paraspinal muscles. Add planks and side planks into your routine, but remember to always fire the glutes and maintain neutral spine. To strengthen the back, focus on always maintaining proper abdominal bracing and a lordotic lifting posture. This means that the best way to strengthen your back and abs for that matter is to change how you think. Every exercise you do is now a back and abdominal exercise. Perform your rows standing or sitting on a ball, keep your abs braced, head up, knees bent and shoulders back. For that matter, always keep the abs braced and the back flat, never round or hunch your shoulders. Do not lean back with the exercise, proper abdominal contraction will counter any extension moment and protect the back while strengthening the abs. Unfortunately the commercially made machines 'designed' to strengthen the back actually place repetitive stresses on the spine and disks while encouraging hyperextension. The best way to achieve a strong back is to build strong abs and lumbar muscles with high endurance and coordination. The back was never designed to be strong, it was designed to have high muscular endurance and lots of help from the abdominal wall and hips

authored by bryan fass