

Notes from Editor

As spring approaches, the weather warms up and activities that you can do outdoors become more available. Remember not to become a weekend warrior. Take your fitness seriously as it will not only set you up for better performance on the field, but better health later on in your life. Read "Get Moving, the Benefits Last a Lifetime" for more tips. Please let us know if you have any ideas for this newsletter.

Yours in Health,

Dave Radin
Editor

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Integrated Training for Improved Cycling Performance: Corrective Exercise/Stabilization Training

As the previous article (Integrated Training for Improved Cycling Performance) looked at how cycling uses a repetitive motion and position that can lead to muscular imbalances, this article will take a look at how to correct these imbalances to allow the body to work more efficiently through a type of strength training known as corrective exercise.

Before we define what corrective exercise is, let's develop a quick understanding of how the body works. The body works as an integrated functional chain (kinetic chain) with the nervous system and muscular system working together as an integrated functional unit called the kinetic chain. If one link in the kinetic chain is affected. For example the hip flexors in a muscles become weak, in this abdominals) and the core cannot re-developed from the pedaling.



Cycling is a dynamic activity that has unique challenges for trainers and coaches to create optimal performance programs.

Traditional strength working the muscles and lats. This is mistake when start-gram. By strength-proper core stabili-area (core) cannot sound training in the strengthening the

gradually work toward the muscles that produce the force to drive the pedals (legs). With that in mind corrective exercise is defined as a phase in an integrated strength to improve muscular imbalances, neuromuscular deficiency, and improve the integrity of the kinetic chain.

Corrective Exercises are selected to improve flexibility, core strength and balance. Why balance you say? Balance is what keeps you upright on the bike. Core strength is the key to good balance. By incorporating balance into this type of training, core strength is enhanced. By improving these three key components, we can increase the efficiency of the kinetic chain and decrease the likelihood of injury to the lower back, upper back, neck, and knees.

The program is divided into 4 sections:

1. Warm-up (flexibility).
2. Core Stabilization

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programs for cyclist focus on of the quads, hamstrings, chest, where most cyclists make their ing an off-season training pro- ening these muscles without zation, the lumbo-pelvic hip stabilize the pelvis. Therefore a off-season will focus on

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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 are the benefits of therapeutic massage?

- A. Improved muscular function
- B. Improved blood flow
- C. Reduce blood pressure
- D. Stress relief
- E. All of the above
- F. None of the above

answer can be found on page 4

Hot Topics

Good Transverse Abdominus Function Promotes Healthier... Knees?

The increased incidence of anterior cruciate ligament injuries in female athletes is well documented. **Research over the past few years has identified gender-based differences while jumping and landing as the probable cause.** A current study attempted to broaden the mechanical explanation by evaluating whether **abdominal recruitment patterns in females could contribute to greater knee instability.**

Twenty male and 22 female recreationally active college students participated in the study; **each was screened for a history of low back pain.** Participants each performed five double-leg landings from a box while electromyographic (EMG) measurements were taken at the rectus abdominus, external oblique, and transverse abdominus/internal oblique **just prior to landing and immediately after ground impact.**

The results of the study indicate that **males recruit the transverse abdominus/internal oblique to a greater extent than females in preparation for landing,** whereas females demonstrated no significant preference between recruiting any of the abdominal muscles. **Transverse abdominus/internal oblique activation was similar in the post-landing measurement.**

Medical professionals speculate that the position where ACL injury becomes inevitable occurs with **combined ankle pronation, tibial external rotation, femoral internal rotation, and an awkward or excessively anteriorly flexed trunk position.** The results of this study may provide some insight into how lumbo-pelvic affects the stability of the knee.

Kulas, A.S. et al. (2006) Sex-specific abdominal activation strategies during landing. Journal of Athletic Training. 41(4): 381-386.

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Exercise of the Month— Incline Cable Chest Press

Preparation:

- Lie supine on bench with good posture.
- Grasp handles with palms facing knees.

Movement:

- Engage your inner abdominals and pelvic floor muscles to assure spinal stabilization.
- Press the handles to full extension without locking your elbows.
- Return to the start position and repeat.



FACTOID

By burning an additional 200 calories a day through physical activity or activities of daily living can result in losing **21 lbs in a year!!**

Trainer Spotlight

Janet Laursen
MS, RD, LDN,
Registered Dietician and
Dietary Counselor

Jan holds a Masters of Nutrition from Drexel University and has helped countless individuals improve their quality of life and enhance their physical performance. Whether your facing a challenging weight loss goal, need counseling on therapeutic nutrition (Diabetes, Heart Disease, Osteoporosis, etc) or want to know how to eat for optimal sports performance Jan has the education and experience to help you meet your goals.

Get Moving - The Benefits Will Last a Lifetime!

The benefits of physical activity are numerous and very well documented. Aside from substantially reducing the risk of dying of a heart attack, regular physical activity decreases the risk for stroke, diabetes, high blood pressure and certain forms of cancer. Regular physical activity helps to build and maintain healthy bones, muscles, and joints and reduces the risk of arthritis and osteoporosis. Regular physical activity helps reduce the symptoms of arthritis and degenerative joint disease and reduces the falls among older adults. Regular exercise has even been shown to reduce symptoms of anxiety and depression. As overwhelming as these benefits are, the sad fact is that less than half American adults do not get enough physical activity to provide health benefits. Less than one third of adults in our country are physically active in their leisure time. The good news is, it's never too late to reap the benefits of an active lifestyle.

Activities performed at a higher intensity or longer duration generally offer greater health benefits; this however, may not be a realistic goal or starting point for everyone. Healthy benefits can be gained from activity as simple as a brisk 30 minute walk five or more times a week. Life can be busy and hectic but with a little creativity and planning every body can make room for physical activity. Take the stairs instead of the elevator. Replace that coffee or cigarette break with a fitness break by taking a brisk walk or doing some stretches at your desk. Play with the kids or the dog. Instead of driving around to find the closest parking spot, park farther away and enjoy the walk. Remember when it comes to physical activity every little bit helps.

To reap the full health benefit of physical activity an exercise plan should address the five components of physical fitness as outlined by the Centers of Disease control. These five components include cardio-respiratory fitness, muscular strength, muscular endurance, body composition, and flexibility. In future columns we will more specifically address these individual components, as well other pertinent topics such as nutrition, weight management and injury prevention. Information that will help you stay Looking Better, Feeling Better, and Playing Better! But in the mean time...Get Moving!

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What's That???

"Exercise is the only prescription that crosses any disease barrier."

gary Holland, march 2007

Quiz Answer:

E. All of the above.

Massage provides all of these benefits plus more!!

Other benefits include reduction in the formation of scar tissue and muscle spasms, and provide greater joint flexibility.

Chef's Corner...

Pasta Primavera with Chicken

This recipe serves: 4

Ingredients

2/3 pound fettuccine
 4 teaspoons olive oil
 2/3 pound boneless, skinless chicken cutlets, cut into strips, salt to taste
 freshly ground black pepper
 1 1/3 medium carrots, cut into thin strips
 1 cup low-sodium chicken broth
 2/3 red pepper, cut into thin strips
 2/3 pound asparagus, cut into 2-inch lengths
 2/3 medium yellow onion, thinly sliced
 2/3 clove garlic, minced
 12 ounces non-fat sour cream
 1 cup freshly grated Parmesan cheese
 4 teaspoons chopped chives



Cooking Instructions

1. Bring a large pot of well salted water to a boil. Add the fettuccine and cook for 10 to 12 minutes until the pasta is al dente. Drain.
2. Meanwhile, heat the olive oil in a large heavy skillet over medium-high heat. Season the chicken cutlets with salt and pepper. Add the chicken to the pan and cook for 3 to 4 minutes until the chicken is golden brown. Transfer the chicken to a plate and set aside.
3. Return the skillet to medium-high heat, add the carrots and cook for 2 minutes. Add the chicken broth by the quarter cup, as needed, to keep the vegetables from sticking.
4. Add the red pepper and asparagus and cook for 2 minutes more. (Continue adding chicken broth as needed.)
5. Add the onion and garlic and cook for 2 minutes more.
6. Turn the heat to low and add any remaining chicken broth and the sour cream to the pan. Cook, stirring occasionally, until the broth and sour cream are well blended. Add 1/2 of the Parmesan cheese. Season with salt and pepper.
7. Add the chicken and toss it with the vegetables to coat it in the sauce. Add the fettuccine and toss again to combine.
8. Immediately serve the Primavera in warm bowls. Serve the remaining Parmesan cheese on the side for sprinkling at the table.

Serving Size: 1 bowl of pasta with chicken and vegetables

Nutrition Information

Number of Servings: 4

Per Serving			
Calories	471	Carbohydrate	46 g
Fat	14 g	Fiber	6 g
Protein	41 g	Saturated Fat	6 g
Sodium	601 mg		

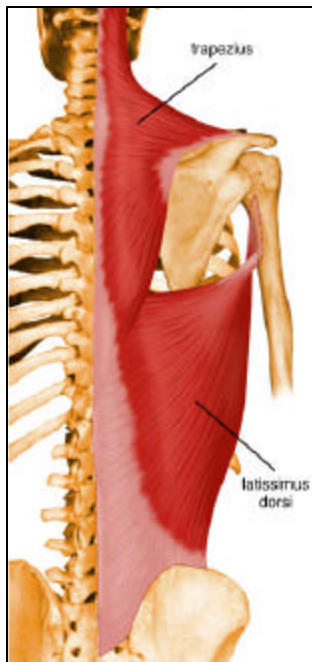
Anatomical Definitions

Motor Unit— functional unit that includes a motor nerve and all the muscle fibers it innervates

Aponeuroses—broad, flat tendinous sheath attaching muscles to each other.

Tendon— band of tough, inelastic, fibrous connective tissue that attaches muscle to bone.

Muscle Anatomy



Muscle: Trapezius

Origin: Spinous Process of C7 (upper), Spinous Process of T1-T5 (middle), Spine of scapula (lower).

Insertion: clavicle and acromion process of scapula (upper), medial margin of acromion and spine of scapula (middle), spine of scapula (lower).

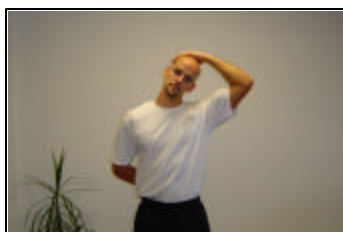
Eccentric Action: decelerate cervical flexion, lateral flexion and rotation (upper), decelerate scapular protraction and upward rotation (middle), decelerate scapular elevation (lower).

Isometric Action: stabilize cervical spine/shoulder complex (upper), stabilize scapula during movement (middle), assist in stabilizing scapula (lower).

Concentric Action: shoulder elevation, cervical extension, lateral flexion (upper), assists in retraction of scapula (middle), scapular depression (lower).

The trapezius is a very strong powerful muscle for the upper body. You see bodybuilders and football players with overly developed traps that look like bowling balls on the side of their necks.

Tight trapezius muscles contribute to neck problems and stiffness in the shoulders. The lower traps usually weaken and as a result, a "slouched" posture starts to develop. Working the traps involves stretching the upper fibers while strengthening the mid/lower fibers. See the exercises below:



Trap Stretch



Prone Cobra

Our Training Philosophy:

**"M.P.E.
TRAINING"
MAXIMUM
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3. Strength

4. Cool - down

The warm-up includes cardiovascular and flexibility exercises. Spend five minutes of light cardio activity to increase blood flow and raise core temperature. Without proper levels of flexibility, it is impossible to have an efficient functioning kinetic chain. Focus on stretching the hip flexors, quads, hamstrings, scalenes, sternocleidomastoid, calves, pectorals, lats and glutes. Hold each stretch for at least 20 seconds without bouncing.

The core stabilization training is next. The muscles of the core are slow twitch muscles and therefore need more repetitions to fatigue. Repetition ranges are generally 15-25, 2-3 sets with a slow tempo to increase their ability to stabilize the spine. Exercises used to correct postural imbalances should emphasize eccentric and isometric muscle actions. Exercises used here are planks, bridges, and cobras. Balance exercises are used here to enhance proprioception and increase stability of the hips, knees, and ankles which will allow for a more efficient pedal stroke.

The strength section works the prime movers of the body while using a slow tempo to allow the muscles to stabilize the body and joints. Bodyweight and dumbbells are commonly used here with stability balls. Repetition and set ranges are the same as the core section (15-25 reps, 2-3 sets). Exercises are chosen to improve stabilization and strength of the shoulders, chest, back, and legs. The cycling position puts a lot of strain on the muscles between the shoulder blades due to the rounded, hunched over position. Therefore the exercise selected are to improve the strength and stabilization of the rhomboids, lower traps, lats, and external rotators. Exercises here include: stability ball dumbbell rows, single leg dumbbell scapions, and external rotations. These exercises will improve the strength and stability of the shoulder allowing for decrease muscle soreness during long rides. The lower body exercises are designed to improve overall function of the leg as a "pedaling unit." Exercises are as follows: single leg squats, stability ball leg curls, and tube walks.

Technique and form are the key to any exercise program and this one is no different. On every exercise, your core should be "braced". To perform a abdominal brace, pull your bellybutton toward your spine, tighten your abs without moving your body (as if you were about to be punched in the stomach). Once you have this basic position, think about "pushing" your abs down into your pelvic region and hold. This position has been shown to reduce back strain by around 40%.

After you have finished with your workout you need to cool-down. Cool down should focus on static stretching of the same muscles that were stretched before you started to work. This allows the muscles that have tightened up to return to their normal resting position and enhance recovery.

Corrective exercise is the beginning part of an overall strengthening program. As your off-season gets longer, the intensity of the strength program will increase and become more specific to cycling activities that will improve strength and power.