The Benefits of Cross-Training

By Paul Krause, MD

The goal of most athletes is to become stronger, improve performance, and avoid injuries. It is difficult to achieve all of these goals by training in one sport alone; “cross-training” can add the missing link. As a new approach to an athlete’s workout routine, cross-training can increase power, add flexibility, build stability, and increase motivation.

We’ve learned over recent years that exercise can both treat and prevent injury and illness. Overdosing on one type of exercise, however, is unhealthy and can result in overtraining injuries, metabolic imbalance, and mental fatigue. In contrast, participating in a variety of exercise activities allows the body to recover from one beneficial stress, while being exposed to another. The symbiotic relationship between these different activities optimizes the training effect on an athlete’s physiology.

Adding cross-training to a workout routine can lead to endless training possibilities. For example, instead of going for a 45-minute run or a 2-hour bike ride, you can do 15 minutes of each and then add some weight training, rowing, or yoga. My experience comes from triathlon training, which by the nature of combining three sports (swim, bike, and run) is cross-training. But even with this diversity of sports, I still need to sometimes “shake it up” a bit. I’ve found that adding weight training or yoga and varying the biking and running by going off-road has challenged and strengthened both my mind and body.

It is the variation of stresses to the athlete’s muscles while cross-training that tricks both the muscles and brain into believing the body needs to be prepared for all of these sports in the future. These variations trigger new neuro-muscular adaptations or, in other words, new pathways from the brain to the muscles. These pathways allow the muscles to respond to stress, adapt, and strengthen, thereby facilitating more efficient muscle firing patterns and improved overall balance. As a result, the athlete’s body can grow and strengthen in ways that improve overall health and optimize performance in their favorite sport.

As I’m sure the AMAA Journal reader knows, a major benefit of cross-training is that it can help the athlete prevent overuse injuries. By varying workouts, the athlete alters the types of stress to the joints, which provides time for the weaknesses to adapt or for injuries to recover. It also allows the muscles and connective tissues used in the primary sport to rest and recuperate. For example, runners tend to have strong hamstrings and calves, while bikers have strong quadiceps muscles. These imbalances can put the athlete at risk for injury. By strengthening opposing muscles through complementary activities, the joints are more stable and the antagonist muscles are less likely to fatigue with intense or prolonged loading of the primary muscle groups. Biomechanical weaknesses, like over-pronation in runners, adductor-dominance in cyclists, or pectoral-dominance in swimmers can also be solved. The result is more power translated to a balanced stride, pedal stroke, or swim technique.

The best motivator for most athletes is performance enhancement. Consider the following example of how this performance enhancement works: watch a fatigued runner in the final miles of a marathon. What do they look like? They are hunched over with their neck jutting forward, pelvis posteriorly rotated, and their legs barely lifting from the ground to initiate each stride. As the hip flexors, abdominal stabilizers, and back muscles fail, the runner’s ability to finish strong is impaired. The lack of trunk stabilization allows the center of mass to deviate from a balanced position, requiring more energy from the legs to stabilize the body. With cross-training, this same runner could gain core stability, maintain balance and posture, and waste less energy—translating into more power with less energy expenditure and more effective forward motion.

With better efficiency, more strength and power, and greater training volume, cross-training can boost the athlete’s fitness and speed. Athletes also need to learn to recover well after an event. Cross-training is a dynamic way to let their body heal after a race or long training session. While many athletes struggle with fitting recovery and rest into their training plan, top competitors make these methods a priority. They know that recovery can be done “actively” to more efficiently move metabolic waste out of their system, before giving their tired and even damaged tissues a rest. As an example, running-backs in the NFL can be seen spinning on a stationary bike on the sidelines of the field to recover and return stronger for their next offensive drive. This technique does not need to be limited to professional athletes; amateurs can reap the same benefit from recovery workouts.

Both rest and recovery are important in clearing metabolites and rebuilding muscle fibers, but they are not the same thing. Light recovery workouts regenerate increased blood flow to vital tissues and prepare the body for the healing

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and regeneration that follow with rest.

Core-strength has become an infomercial buzzword lately, but it’s not just for “Six-Pack Abs.” Core-strength allows for central stabilization of the body, which enables the maximum force to be ultimately generated by our extremities. For instance, the baseball pitcher’s throwing strength starts with his legs and moves through his abdomen and back, before even getting to his shoulder, arm, wrist, and fingers. The same is true for the push off of running, the pull of swimming, or even the golf swing. Why is it that we swing our arms when we sprint? It’s because they help us to balance and drive our legs. We need strong and stable core muscles in order to transmit power through our kinetic chain. Here again, cross-training in the form of yoga, pilates, or weight training can build core strength and stability, which leads to more power for the athlete.

Cross-training not only brings about positive changes in physical fitness and reduces the chance of injury, it can also provide the athlete with new motivation. It prevents boredom of the muscles, as well as the mind. It helps to keep workouts from getting stale, while sharpening reflexes. If variety is the “spice of life,” then cross-training is the “spice of exercise.”

When athletes cross-train, they tackle a more diverse and novel set of challenges. This allows them to be more complete athletes. Here is a list of sports that you may take to your own workout plan:

- Skate skiing: quadriceps strength and balance
- Classic skiing (aka “striding”): gluteus and triceps strength
- Snowshoeing: hip flexor and gluteus strength
- Inline skating: low back strength and balance
- Rowing: upper back and quadriceps strength
- Cycling: quadriceps and anterior tibialis strength
- Yoga: core strength and flexibility at low impact
- Pilates: core strength and power
- Elliptical trainer: legs and arm strength at low impact
- Circuit weights: functional strength, wherever it’s needed
- Rock climbing: upper body and core strength
- Swimming: shoulder and arm strength
- Deep water running: run strength with increased resistance and low impact

If the athlete has a big race coming up, the month before the event, he or she may need to do more sport-specific training near race pace and reduce the amount of cross-training. But in the months leading up to that event and certainly in the recovery week after it, cross-training could be the answer for future performance enhancement and injury prevention.

If your patient or client is a runner, suggest they try something new like a different gym workout or, perhaps, a triathlon. They may be amazed by how daily runs gets faster and easier—and will probably even have fun doing it!

Now that’s what cross-training is all about.

Dr. Krause is a family physician in Taboe, California, where he works at the base of Squaw Valley and Northstar ski resorts. He has competed in over 50 triathlons from sprint to Ironman distance, as well as Nordic ski races, open water swims, and marathons. He is a volunteer clinical faculty member at UC Davis School of Medicine and teaches both medical students and sports medicine fellows in training. He is a traveling physician for the US Nordic Ski Team and Hawaiian Ironman Triathlon World Championships. Dr. Krause spoke on the topic of triathloning and cross-training at the 38th Annual Sports Medicine Symposium at the Boston Marathon.

REFERENCES
Cycling is the best cross-training sport for runners, Mr. Cook believes, since it builds an aerobic base while maintaining range of motion. "It forces your leg muscles to contract and increases the blood flow," he said. "If you do it properly, you're not really straining on the bike, the muscles aren't getting that abused." Cyclists tend to work opposing muscles like the quadriceps and hamstrings differently than they do when on foot. Cross-training has helped keep me injury free for years and it helps keeps things varied enough to help prevent burnout. I also can speak highly enough of incorporating strength training into cross training schedules as well. Just 2 sets of 6-8 moves is all it takes to get all your muscles and help you stay strong.

9 Awesome Benefits of Cross-Training. Looking to meet a new fitness goal? Training for a big event? 1. It can Prevent Overuse Injuries. Cross-training can help you prevent first-time injuries and reinjury. Here’s why: When you first start a new sport, you usually want to go all in! Cross-training helps you ease yourself into a new activity. You can start running and build up your leg muscles, and you can cross-train with swimming to steadily improve your aerobic health while giving your legs a break. 2. Better Overall Fitness. Your body will never be truly balanced and healthy if you only practice one activity.
Managers are beginning to depend on cross-training employees as a prolific staff management policy. But some experts have questioned the strategy; if it’s entirely beneficial or poised to gradually ruin a workforce. However, cross-training is an important method of training for manager level employees to facilitate their performance in all sectors and to enable them to find the principle point of all units across the company. Cross-training implies teaching employees multiple skills. Learn the benefits of cross-training and which activities are the best alternatives for runners. Cross-training is any sport or exercise that supplements your main sport. Studies show that cross-training offers many benefits for runners. Whether you’re a beginning runner or an experienced marathoner, here are several reasons why you should consider cross-training: It helps balance your muscle groups. Cross-training helps strengthen your non-running muscles and rests your running muscles. You can focus on specific muscles, such as your inner thighs, that don’t get worked as much while running and may be weaker than your running muscles. You’ll maintain or even improve your health. Cross-training employees in healthcare is also common and valuable. It may be something as simple as training the office manager to prioritize (triage) certain types of cases that come into the office. Or, it could be giving physician’s assistants training on common insurance questions so they can help patients during their consultations. As you’ll notice, neither of these examples require weeks spent in boardrooms with training manuals and assessments. Cross-training simply aims to build the skills of everyone in the company so everyone better understands exactly what it takes to run the business. Here are six great examples of the benefits of cross-training employees: Great return on investment. Better collaboration.