



Integrative Functional Training Using Dynamic Surfaces

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What is it?

Integrative Functional Training is the performance of various exercises that simultaneously develop core stability, balance, and strength by requiring the spinal joints to work in cohesion with the body's other joints (i.e. hip, ankle, elbow, wrist, etc.). A key to this training is using Dynamic Surfaces since, "We don't move in one plane. Training on dynamic surfaces challenges the body on multiple planes so that one gains neuromuscular strength," says Michelle Schwahn, Physical Therapist. Performing these exercises simultaneously trains our joint, muscular, and nervous systems, which allows our bodies to reach optimal performance. This is especially critical for athletes since stabilization of the spinal column will improve the transfer of energy between the lower and upper body.

Why is it Important?

Core stability, strength, and balance are all direct results of Integrative Functional Training techniques. The strengthening of functional muscle groups (core muscles) leads to a more sophisticated neuromuscular system, and hence, a more highly trained athlete.

Rick Jemmett, PT, illustrates three primary reasons for using Integrative Training techniques in his book, *The Athlete's Ball*.

1) Protect the spinal column.

The spinal column has recently been shown to be a surprisingly fragile structure in need of constant support from our core muscles. This support involves the control of small movements, which occur at individual spinal joints. The muscles which protect the spinal joints and stabilize the spinal column are the transversus abdominis, the quadratus lumborum, and the multifidus muscles. The nervous system must be able to coordinate the activity of these and other trunk muscles to maximize the protection of spinal joints. The fragile nature of the spinal column and the complexities involved in coordinating the deep muscles necessary for spinal stability explain why a very fit athlete can 'throw their back out' while doing something benign like taking out the trash.

2) Provide a stable platform from which the shoulder and hip muscles can generate movement in the upper and lower extremities.

The fact that the spinal column requires ongoing support from our core muscles has far reaching implications. Most of the muscles, which stabilize joints like the shoulder and hip, originate on the spinal column.

3) Transfer energy between upper and lower body.

To understand the concept of energy transfer, imagine a baseball pitcher who is for some reason prevented from using his lower body throughout the pitching motion; he has to keep his legs still and throw the ball using only his arm. Will he throw as hard as when he is able to use his lower body as he winds up to pitch? In beginning the throwing motion with the legs, **kinetic energy** generated in the lower half of the body is transferred through **the core muscles** to his throwing arm, and eventually to the ball. If the athlete's core muscles are well trained, this transfer of kinetic energy takes place efficiently.

Another important benefit is the optimization of our balance system. According to Michelle Schwahn, "Training on dynamic surfaces is an excellent way to optimize our balance system. With age our balance deteriorates because our activities have been modified. As we age, we have a greater chance of falling, but by bringing in the neuromuscular system we are keeping ourselves youthful." Other common injuries from delayed activation of the core muscle groups are ankle sprains, knee sprains, back problems, and hip injuries. Michelle goes on to say, "These problems are because of a weak link in the body, and until we've fully rehabilitated and restored optimal function we will continue to compensate. We can define the weak links by isolating areas using dynamic surfaces to see what is, or isn't, working."

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How Can I Use This?

Stability, strength, and performance are the goals of any Integrative Functional Training program. Physical therapists, for example, use integrated products and techniques to isolate the weakness and work multiple muscle groups. Soft weights, Bosu, and foam rollers are excellent tools in providing a gradual approach to the restoration of lost muscle and joint function. Personal and athletic trainers can also incorporate Integrative Functional Training techniques into their sessions with clients and athletes alike. The key to incorporating this type of training is to do so at a gradual pace.

For instance, “Exercises should challenge, but not overwhelm the stability system,” says Jemmett, “Muscles need to stabilize in order to protect the joint. One objective of Integrative Training is to teach our body to make correct use of the middle and outer layer muscles.”

He goes on to say, “Begin by performing exercises emphasizing balance and static ability in a single exercise. This may include holding a posture while on a stability ball, wobble board, or some other dynamic surface.”

Jemmett also suggests:

- ❑ Integrative Training (IT) should not exceed the athlete’s stabilization ability.
- ❑ **Quality** of movement is more important than **quantity**- watch for signs of technical fatigue.
- ❑ Position sense, or deep layer, exercises are progressed (made more challenging) by decreasing the base of support and the number of points of stable contact.
- ❑ Static IT exercises are progressed by holding each posture for longer periods of time while performing fewer reps.
- ❑ Dynamic IT exercises are progressed by performing more repetitions.



❑ **Push-up on inflatable roller**

Making the Transition

Always remember that the transition to Integrative Functional Training should be a gradual one.

“As functional core stability increases so will the ability to use heavier weights.”
- Rick Jemmett, PT

Jemmett notes in his book that, initially, the neuromuscular system will not be able to cope with lifting the same amount of weight while also stabilizing the trunk. This transient decrease in the amount of weight lifted is not a result of a loss-of-strength, but is instead reflective of the

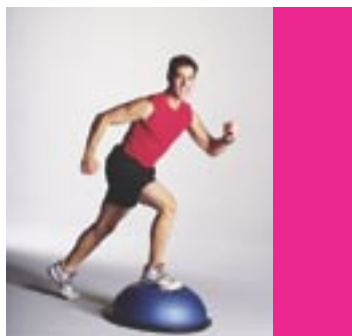
neuromuscular system’s inability to generate strength while stabilizing the trunk. As functional core stability increases so will the ability to use heavier weights.

Product Mentions

All products mentioned in this newsletter can be purchased from OPTP. Shop online at OPTP.com to see our vast selection of Foam Rollers, Gymnic Balls, Wobble Boards, Soft Weights, Bosu, and more! Or you can talk to one of our knowledgeable customer service representatives Monday-Friday from 8AM-5PM CST. Call us today at 1-800-367-7393, and we’ll be happy to assist you with all your health and fitness needs.

By keeping these guidelines in mind there are a number of exercises that can be performed.

A few, recommended by Michelle Schwahn, PT, are



- ❑ **Lunging on Bosu with tricep overhead press**
- ❑ Single leg standing on mat with biceps curl
- ❑ High kneel with lateral raises on Bosu
- ❑ Hip abduction with balance challenge (Bosu)
- ❑ Half kneel on foam roller with spinal rotation

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References:

Jemmett, Rick B.Sc., PT. *The Athlete’s Ball*. Halifax, Canada: novont health publishing ltd., 2004.

Strength Training on Dynamic Surfaces course outline. Michelle Schwahn, PT, AFAA.