

THE ABCS OF SMART TRAINING



Follow the ABCs of program design to increase training potential, improve skills, decrease recovery time and minimize chance of injury. **Part 1** By Carl Petersen

ATHLETIC STANCE AND ALIGNMENT

Proper athletic stance means being prepared for the sports activity ahead. Keep the knees slightly bent. Cue lower abdominal tension with phrases such as “switch on the core,” “think of your pelvic tension like a dimmer switch,” or “fire the core and sustain it” or “keep your tummy thin.”

Shoulders should be relaxed and down with the head neutral.

Correct anatomical alignment must be attained and maintained to allow for proper force distribution upon the weight-bearing structures during activity. This can be facilitated by actively stretching muscles that are usually short and stiff (e.g., hamstrings, hip flexors, calves and pectorals) and actively strengthening muscles that are usually long and weak (e.g., lower abdominals, upper back and posterior shoulder girdle muscles/infraspinatus and hip external rotators/gluteals).

Proper alignment starts with excellent spinal alignment. Cue your clients to “imagine someone pulling you up by the top of the head and lengthening the spine.” The neck should be long and the shoulders relaxed, back and down. Emphasize correct knee alignment, with knees always tracking over the toes, but avoid going past them. Lunges or split squats should keep the line of gravity through the pubic bone of the pelvis to avoid shear forces on the pelvic joints.



Knees should track in line with the toes but never go past them. Squeezing a ball between the knees activates the medial quadriceps, and stretch cord retractions work the upper core.



BALANCE EXERCISES

Balance exercises are a fundamental component of functional mobility and dynamic activity and should be a part of everyone's training routine. Working on balance training is even more important as clients increase their strength and speed. Continually reset the balance clock to have the opportunity to practice and play with newly adapted and strengthened muscles.



You don't need fancy equipment to challenge balance. Try a rolled towel or a rolled and taped phone book.



Use a variety of equipment to optimize balance training in different positions.

Work on joint sense (proprioception) and reset the balance clock with a variety of exercises. Balance work stimulates the complex interactions of the neuromuscular system when incorporated with closed chain and functional exercises. This is especially important after injury if there is joint swelling and decreased proprioception.

Balance exercises should be included as part of the daily training plan since most activities depend on an element of coordinated balance in many planes of movement.

CONNECT THE UPPER AND LOWER CORE

Train your clients' ability to stabilize the core and generate power outward to the limbs. Core musculature helps create movement at the spine and also exerts a stabilizing muscular force to maintain a neutral spine and pelvis. Use a variety of movements and training types to ensure a balanced approach to core training. Always cue them to switch on the core (low background tension—like a dimmer switch of the pelvic floor and lower abdominals) during all exercise and activity.

Upper and lower core stability is important to give a strong platform to execute movements with the extremities. In health, there is a pre-anticipatory contraction, but with dysfunction, there is a timing delay or absence, (Richardson & Jull, 1995), so the muscle must be actively switched on by appropriate exercise.

Remember, efficient movement needs optimal stabilization and requires intact bones and tissues and efficient and coordinated muscle action as well as the appropriate nervous system firing.



This hip hike drill with a stretch cord pull challenges balance on the standing leg. Add a rotational strength component to connect the upper and lower core. Start with 2 sets of 5 and build to 3 sets of 15.



This bridging exercise with a ball squeeze helps gain control of the pelvic floor and lower abdominals (transversus abdominus). Start with 2 sets of 5 (4 second hold) and build to 3 sets of 15.

EXTENDED HIP EXERCISES

Hip-extended strength is the position of function for all sports. A competitive posture and a seated office posture both shorten anterior muscles. Exercisers need strength and stability into hip extension. Training should include exercises that promote both dynamic flexibility and strength. These types of exercise improve general fitness and help daily activities such as lifting, stepping, carrying, pushing and pulling. Use exercises that connect the core to the activity and that combine upper body, lower body, and core moves in hip extension. This is crucial to optimal functional movement.



With a physio ball overhead, squeeze it and pull down, partially closing the kinetic chain through the arms. At the same time do a rotational hip hike. Try 2 sets of 5 and build to 3 sets of 15.

DECELERATION CONTROL

Sports require control during high-speed movements to allow for quick stopping, then exploding laterally or forward. Deceleration control is needed during quick stops and starts, direction changes and during follow-through in throws and racquet sports. Muscles provide deceleration control by creating counter-forces by lengthening (eccentric "contractions").

Slowing the tempo on the way down forces the body to control deceleration as the muscle lengthens. Start with 2 sets of 5 and build to 3 sets of 15.



FUN

Training and playing with different exercises is fun. Improvement is fun. Challenge your clients with hard training that is safe and makes use of natural movement patterns. Remember that they train and play sports to achieve success, but also to be with friends and have fun. FTC

NOTE: Part 2 will run in May 07
 Carl Petersen, P.T., is a partner and the director of High Performance Training at City Sports & Physiotherapy Clinics in Vancouver. He has written several books including *Fit to Ski* (available at www.citysportsphysio.com) and co-authored *Fit to Play Tennis* with coach and exercise model Nina Nittinger (available at www.racquettech.com).