

10 Useful Program Design & Sample Classes



Inspire the World to Fitness®

BY FRED HOFFMAN, MED

Sample Class: Core Circuit

Combine two popular fitness trends in one fun class.

According to the 2005 IDEA Fitness Programs & Equipment Survey, 56% of respondents offer circuit classes, while 63% offer core conditioning. “Core Circuit” provides a great way to reap the benefits of both activities in a single session. This class uses closed-chained, multijoint exercises and contains strength, endurance and balance training components. Core muscle conditioning, trunk stabilization techniques and postural alignment exercises combine to create a well-rounded routine.

CORE CIRCUIT DETAILS

FORMAT: stationary core-training circuit for 25–35 participants; 8–10 stations
TOTAL TIME: 60 minutes (4–5 minutes each exercise)

EQUIPMENT NEEDED:

for each participant: one set of dumbbells or a Body Bar® (choose an appropriate weight for sufficient muscle fatigue and overload); exercise mat
for instructor: whistle and stopwatch to signal station changes

MUSIC: Working on the beat is an option, not an obligation. If exercises are “choreographed,” 124–28 beats per minute will allow proper execution.

WARM-UP (6–8 MINUTES)

Use large motor movements such as dynamic squatting, alternating lunges, step-touches and marching in place for the lower body. For the upper body, try gentle torso rotations side to side, overhead reaches, shoulder rolls and arm circles. These exercises help prepare the joints and muscles.

STATION 1: SQUAT WITH OVERHEAD PRESS AND HIP ABDUCTION

- Stand with feet hip width apart, knees slightly bent.
- Set 1: Holding a dumbbell in each hand, flex elbows 90 degrees at shoulder height, abduct and extend arms overhead, 8–12x.
- Set 2: Without dumbbells, squat down to approximately 90 degrees, return to standing position and abduct one hip, lifting leg off floor. Alternate right (R) and left (L) 8–12x.
- Set 3: Combine sets 1 and 2. Squat while holding dumbbells, return to standing position, and perform overhead press while abducting one leg. Lower arms as foot returns to begin next squat. Alternate R and L 8–12x.

STATION 2: QUADRUPED OPPOSITE ARM AND LEG

- Start in quadruped position, hands directly beneath shoulders, knees under hips, spine in neutral.
- Set 1: Lift and extend R arm and L leg. Hold for 3–5 slow, deep breaths (30 seconds). Maintain neutral posture. Repeat with L arm, R leg.
- Set 2: Holding one dumbbell in R hand, extend and lift R arm and L leg. Lift and lower 8–10x. Switch sides.
- Set 3: Extend R arm and lift L leg (dumbbell is optional). Flex elbow and knee, moving them toward center of body. Return to start position. Repeat 8–12x, and switch sides.

STATION 3: STANDING HIP FLEXION

- Stand in neutral posture, knees slightly bent, feet hip width apart, arms at sides.
- Lower torso toward floor with maximum of 90 degrees of hip flexion (parallel to floor). Return to start position. Repeat 8–12x.
- Hold Body Bar or dumbbells in hands

in front of thighs. Repeat above, lowering torso and weights, 8–12x.

- While holding Body Bar or dumbbells, flex forward, extend and lift R leg behind (maximum height: parallel to floor). Return to start and repeat, lifting L leg. Perform 8–12x, both sides (alternating R and L).

STATION 4: PLANK

- Lie prone, forearms resting on mat, elbows under shoulders, chest and head slightly lifted, legs and toes on floor.
- Set 1: Lift torso and knees off floor, and engage abdominals. Extend knees until legs are straight. Maintaining neutral spine, hold for 3–5 slow, deep breaths (approximately 30 seconds). Variation: Keep knees on floor.
- Set 2: Add: Lift one leg off floor.
- Set 3: Switch sides, and alternate for a total of 4–6 reps.

STATION 5: ALTERNATING LUNGE WITH CROSS-CHOP

- Stand with feet hip width apart, knees slightly bent, arms at sides.
- Set 1: Step R leg back into lunge; return to start position. Repeat L. Perform 12x each side.
- Set 2: With Body Bar or dumbbells lifted in diagonal position, perform cross-chop (kayaking movement) down to R as R leg lunges back. Lift Body Bar or dumbbells up as foot returns to start position. Repeat L. (When using Body Bar, one hand changes grip when alternating R, L.)
- Set 3: Start with Body Bar or dumbbells lowered to side of hip. Move cross-chop upward while performing lunges.

STATION 6: PUSH-UP INTO T-STAND

- Start in push-up position.
- Set 1: Maintain position with neutral spine for 3–5 slow, deep breaths (30 seconds).

instructor safety tips

- Before starting, ensure that all participants understand “neutral posture” and are able to establish correct body alignment.
 - Review the proper use of the selected equipment.
 - Emphasize proper body mechanics and technique through verbal and visual cuing.
 - Encourage students to work at their own pace and to compete only with themselves.
 - Remind students to slow down or rest if they are tired or feel excessive discomfort.
 - Have fun!
-
- Set 2: Perform 1 set of 8–12 push-ups (from knees or toes).
 - Set 3: Lower, then push up and rotate entire body outward to R, legs extended, feet resting on outside and inside edges, L arm lifted to ceiling (if starting on knees, top leg extends). Pause, rotate back to L, place L hand on floor and begin another push-up. Repeat L. Alternate for a total of 2–3 sequences (4–6 push-ups).

STATION 7: ABDOMINAL STABILIZING STRENGTH AND ENDURANCE

- Start in supine position on mat, hips and knees flexed at 90 degrees, head on floor, arms flexed, elbows above head on floor, core engaged.
- Set 1: Slowly extend R leg, and lower it

toward floor. Return to start position, and switch legs. Repeat 8–12x.

- Set 2: Repeat set 1, but hold leg in lowered position for 2–3 slow, deep breaths (20 seconds). Return to start position, and switch legs. Repeat 8x.
- Repeat set 1, adding arm movements: Extend shoulder, bring arm toward descending leg, and lift as leg returns to start position.

STATION 8: SIDE-LYING BRIDGE (MODIFIED T-STAND)

- Lie on R side, forearm resting on mat, palm down (facing forward), elbow directly beneath shoulder, knees bent 90 degrees.
- Set 1: Lift torso, buttocks and R thigh off floor, bearing weight on forearm. Extend L leg, keeping foot on floor. Hold for 3–5 slow, deep breaths (30 seconds), maintaining alignment. Switch sides.
- Set 2: Lift and lower torso, buttocks and thigh. Repeat 8–12x each side.
- Set 3: Repeat set 2 with both legs extended, bearing weight on forearm and side edges of feet.

STATION 9: ABDOMINALS WITH KNEE FLEXION AND EXTENSION

- Start in push-up position (on knees).
- Set 1: Engage core, and hold. Extend R knee, flex back to floor, and repeat with L knee. Perform 8–12x (alternate legs for a total of 16–24 movements; do not lift and lower buttocks).
- Set 2: Repeat above, starting with L knee.
- Set 3: Extend *both* knees simultaneously, maintaining neutral posture.

Pause, and return knees to floor. Repeat 8–12x.

STATION 10: GLUTEAL BRIDGE

- Start supine, head and shoulders on floor, arms along sides, feet hip width apart, knees bent.
- Set 1: Extend hips, lifting buttocks (avoid excessive spinal hyperextension). Hold for 3–5 slow, deep breaths, and lower buttocks to floor without completely releasing.
- Set 2: Extend hips, and lift one leg to height of other (pelvis doesn't dip to one side). Hold for 3–5 slow, deep breaths. Replace foot and leg to start position, and lower buttocks to floor. Switch sides.
- Set 3: Repeat set 2, but abduct lifted leg, maintaining core stability. Hold for 3–5 slow, deep breaths. Return foot and leg to start position, and lower buttocks to floor. Switch sides.

STRETCH AND RELAX (5–7 MINUTES)

Run through a few sequences of the sun salutation, and include some simple yoga stretches that will help “lengthen” the core muscles. Conclude with a guided relaxation, using positive verbal cues to help students unwind and let go of stress.

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Resisted Core Training

Partner students up and teach them new ways to challenge themselves.

Students often want to do the same supine abdominal crunches and oblique bicycle exercises because these make them feel comfortable and confident. The following partner-based core-strengthening exercises are familiar, but they also offer new challenges. Teach students how to stabilize the core and move the spine in flexion, rotation and extension. As always, be sure to modify as needed.

RESISTED SPINAL FLEXION ON STABILITY BALL

- Student A rests on stability ball with lumbar area supported, head and shoulders off ball.
- Student B sits behind ball, securely holding light- to moderate-resistance tube at midpoint with both hands.
- Student A securely holds tube handles—elbows bent, palms up—near shoulders. Neck is in neutral position, abdominals are engaged, and feet are hip width apart.
- Student B sits into V-sit position, balancing in front of tailbone. Spine is in neutral; either knees are bent or legs are extended along sides of ball.
- Student A inhales; exhales into spinal flexion, bringing rib cage toward hip bones; releases to neutral; and repeats (the ball does not move).
- Student B continues to stabilize in V-sit position against pull of tube.
Repeat 10–15 times; switch.

RESISTED V-SIT ROTATION

- Partners sit back-to-back in V-sit formation on separate mats, exercise tubes linked in X configuration. Handles are securely held in each hand near bottom ribs, with elbows at sides.
- Both students have neutral spine and engaged abdominals with knees bent (easier) or legs out in front (more difficult).
- Students adjust positions to ensure there is enough resistance.
- In unison, partners inhale (prepare) and then exhale, each student pressing right arm out, slightly up and away from body, while rotating right shoulder forward. Left shoulder is slightly back.
- Partners inhale, return to center and exhale to other side (alternate sides).
Repeat 10–15 times. Both students move right arms at same time, then left arms at same time.

RESISTED SPINAL EXTENSION

- Students lie prone, crowns of heads facing each other. Resistance tubes are linked in X formation. Each partner securely holds handles.
- Legs are hip width apart, abdominals contracted, faces just above mat; cervical spine is in neutral.
- Students hold handles overhead with arms lengthened, so there is resistance on tube. They inhale (prepare) and, exhaling, perform a lat pull-down. Elbows bend and come down, stopping at approximately 90 degrees of

flexion. Arms are slightly above, and parallel to, floor.

- Students inhale again and extend spine (lifting away from floor). Arms are kept in lat pull-down position. On exhalation, partners return to start.
Repeat 10–15 times.
Note: Be cognizant of participants with low-back problems.

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Training the Novice Triathlete

Designing a three-pronged program that targets endurance, core stability and flexibility can reduce your client's potential for injury.

USA Triathlon estimates that 150,000–250,000 people in the United States try a multisport event each year. The organization estimates that its membership weighed in at approximately 15,000 athletes in 1994; just 10 years later, the count had topped 53,250. Jordan Metzl, MD, a sports medicine physician at the Hospital for Special Surgery in New York City and an avid triathlete, believes that this surge in popularity is due to the “realization that the wear and tear on the body is much less in triathlon training than in running alone; triathlon training encourages both strength and cardiovascular conditioning.”

A triathlon is an individual sport consisting of three legs: swimming, cycling and running. Course distances vary, from beginner (sprint) to advanced (Ironman®). Today, hybrid races have formed, including team races that may entail kayaking or in-line skating in place of one of the traditional disciplines. This article will focus on the training needs of the novice triathlete.

TYPICAL CAUSES AND TYPES OF INJURY

Since scientists are still catching up to the fast-growing trend of triathlon racing, more data are needed on injuries that occur, both in race preparation and on the actual race day. Researchers already know that a significant relationship exists between injury and the competitor's weekly training hours, performance level and age. Shaw and colleagues (2004) found the following statistical associations between hours of

training and injury:

- For nonelite athletes, the likelihood of sustaining an injury was least when training for 8–10 hours per week—specifically, cycling for 5–6 hours and running for 3–4 hours. Time spent on swim training did not appear to affect injury risk.

- Athletes with a higher number of training hours were more susceptible to suffering a muscle-tendon injury.

According to a study by Egermann and colleagues (2003), older athletes tend to sustain more fractures, while high-performance athletes (Ironman-level racers) experience more contusions/abrasions and muscle-tendon injuries.

Injuries do not appear to be influenced by gender (Egermann 2003).

Triathlon competitors are exposed to varying environmental conditions (e.g., water temperature, terrain and attire) that influence a broad range of complications. Dallam and colleagues (2005) found that triathletes may experience a variety of medical conditions, including muscle cramping, heat illness, postural hypotension, excessive exposure to ultraviolet radiation, musculoskeletal injuries and trauma, gastrointestinal problems, bacterial infection, immunosuppression, sympathetic nervous system and psychological exhaustion, and hemolysis. In longer races, these medical conditions may be intensified by the effects of hyponatremia.

IMPROVING THE ODDS

To reduce potential complications, personal trainers should focus on physical preparation and musculoskeletal-injury prevention. In a study by Burns and others (2003), 50% of triathletes sustained an injury in the 6-month preseason period; for that 50%, there was an average injury exposure rate of 2.5 for each 1,000 training hours. Overuse accounted for 68% of preseason injuries reported. During the

competition season, 37% of triathletes were injured, but the average injury exposure rate was higher: 4.6 per 1,000 training hours. Overuse was again the main culprit, accounting for 78% of reported competition-season injuries.

A reduction in these high injury rates may be facilitated by well-rounded strength, flexibility and cardiovascular training programs. Exact cardiovascular training schedules (hours per week of cycling, swimming and running) should be designed in accord with the chosen race distance and the individual's goals. This aspect of the training is complex, and attention to detail is essential. (See www.trainingpeaks.com and www.trifuel.com for assistance in developing these parameters.)

Strength training and flexibility exercise are of utmost importance in injury prevention. As you begin designing a program, think about what triathletes need:

- To finish a triathlon, they need endurance. Their muscles need to be strong and able to maintain strength over time.
- To maintain athletic posture throughout the race (and thereby prevent injury caused by poor form), triathletes need core stability and flexibility, which enable them to efficiently transfer power and strength to the extremities and reduce stress on the joints.

THE STRENGTH TRAINING PROGRAM

To avoid overwhelming your client, make the strength training routines time-efficient. The triathlete already has a rigorous workout program of swimming, biking and running to fit into a busy life! Also, to avoid injury, utilize periodization. Vary the program, dividing it into phases that highlight strength gains, power gains and—during racing season—strength

tips for a running start

Share these helpful hints with your clients to prepare them for a successful race day:

- Look ahead at the weather report and double-check race gear and attire to make sure they are suitable for lower temperatures or wet conditions if necessary.
- Perform a last-minute safety check on equipment, perhaps taking your bike to a local bike shop for a checkup.
- Speak with a physician or a nutritionist about appropriate fluid replacement for your racing level and your body; this will ensure that you are drinking enough, but not too much.
- Visit the course location in the days before the race to reduce the chances of getting lost come race day and to ease any prerace jitters.

maintenance.

Using traditional periodization methods, vary the amount of resistance, the number of reps and sets, and the rest time. Consider the following example.

Strengthening Phase. This phase may include a midrange to higher number of reps (8–15) and 2–3 sets. Use an adequate amount of resistance to fatigue the muscles within the suggested number of repetitions.

Power Phase. Once the athlete has established a good strength base, you can focus on increasing power through a lower number of reps (5–8) and 2–4 sets. Choose a level of resistance that will exhaust the muscles within the suggested repetition range. Power strengthening sessions increase explosive power during swimming, running and cycling. They can be done in conjunction with speed sessions (i.e., at the track) or strength sessions. *It is important to implement a solid strength training program before beginning any power sessions.*

Strength Maintenance. This phase takes place during the season. Use more reps (12–15) and 2–3 sets, again using enough resistance to fatigue the muscles within the suggested repetition range.

SUGGESTED STRENGTH TRAINING

These exercises may be used in addition to a general strength training program. The highlighted muscle groups and move-

ments accentuate sport-specific areas in an attempt to prevent injury. To focus on endurance, keep rest times short (about 30 seconds).

Lower Body. The number of repetitions will vary depending on the phase in the training schedule.

1. lunges and step-ups
 - Type: straight line and multiplanar.
 - Purpose: to increase power and strength in the hip and knee extensors.
 - Translate to: kicking during swimming, pedaling during cycling, and the push-off during running.
2. hip abduction and adduction
 - Type: with cables, or sidelying with ankle weights.
 - Purpose: to increase strength and improve balance of the hip musculature.
 - Translate to: stabilization of the hips and pelvis during running.
3. ankle plantarflexion and dorsiflexion
 - Type: calf raises, toe raises, calf presses.
 - Purpose: to reduce calf/shin injury.
 - Translate to: kicking during swimming, pedaling during cycling, and proper running stance.

Upper Body. The number of repetitions will vary depending on the phase in the training schedule.

1. shoulder external and internal rotation
 - Type: with cables and/or free weights.
 - Purpose: to increase rotator cuff strength.
 - Translate to: stabilization of the humeral head in the glenoid fossa (“socket”) of the shoulder during swimming.
2. scapular retraction
 - Type: rows, prone shoulder horizontal abduction, lat pull-downs.
 - Purpose: to maintain balance in shoulder musculature.
 - Translate to: maintenance of balance between anterior and posterior upper-body muscles in swim training, thereby reducing shoulder injury.

Core Stability. Each exercise shares the goal of improving the stability of the foundation from which the extremities move.

1. plank hold (2–3 reps, hold 30–60 seconds)
 - In prone position, place hands directly under the shoulders and press up into a push-up position.
 - Maintain a straight line from shoulders to heels.
 - Continue to inhale and exhale throughout the hold, keeping abdominals tight.
2. hover (2–3 reps, hold 15–30 seconds)

- In prone position, place elbows directly under the shoulders and press up into a “hover” position while maintaining a straight line from shoulders to heels.
- Exhale while pressing up into hover position, then comfortably inhale and exhale while holding the position, keeping abdominals tight.
- 3. plank hold with alternating leg lifts (2–3 sets, 8–12 reps per side)
 - Position as in standard plank hold, above.
 - Keeping the back straight, alternate hip extensions, exhaling as the leg is lifted.

THE FLEXIBILITY PROGRAM

Increasing flexibility will help correct postural dysfunctions as well as reduce the strain caused by abnormal muscular pull on joints and tendons. Use your favorite stretches, making sure to include the muscle groups famously tight in triathletes. I cannot emphasize enough how important it is to keep the gastrocnemius-soleus complex and anterior tibialis muscles flexible; doing so will minimize the possibilities of shin splints and Achilles tendonitis!

Here is a list of important muscle groups to stretch in the average novice triathlete:

- gastrocnemius-soleus complex
- quadriceps
- hamstrings
- hip flexors
- iliotibial band
- lower back
- trapezius (especially upper traps)
- triceps
- forearm flexors and extensors
- latissimus dorsi
- rhomboids
- pectorals

OTHER FACTORS IN INJURY PREVENTION

Many components must fall in line for the successful completion of a triathlon. Two major components include appropriate shoe wear and sport form/technique.

Shoes. A triathlete who does not have the proper equipment is at risk for injury. It is essential that your client wear suitable shoes for biking and running. If you or your client is unsure about which shoes may be best, contact a local running-shoe store. These shops usually have dedicated, informed salespeople ready to help.

Form/Technique. Improper technique may occur when fatigue sets in and the athlete gets sloppy. On the other hand, perhaps the athlete never had proper form. If your client complains of a sore shoulder, for example, it is possible that his or her swimming stroke needs to be adjusted. In this case, you could suggest that your client contact a local YMCA or a private club for a refresher class or “form-checking” session. Local running, biking or swimming coaches can make valuable changes in as little as one or two sessions.

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Sample Class: Kickbox Boot Camp

Help participants to train for cardiovascular endurance, to explore the anaerobic threshold and to improve strength, all in one class.

“Kickbox Boot Camp” is a time-efficient, interval-style workout that yields great results. Cardio kickboxing drills and combinations improve aerobic endurance and burn calories. Athletic drills—incorporated as short bursts—challenge the body anaerobically. The finishing touch is a strength training segment that targets large muscle groups and improves muscular endurance. Many people complain about not having enough time to exercise; interval training is a great way to offer more bang for the buck.

Kickbox Boot Camp Details

FORMAT: Kickbox Interval

TOTAL TIME: 75 minutes

EQUIPMENT NEEDED: step platform and weighted bar for each participant

MUSIC: 136 beats per minute (bpm) for cardio kickboxing and drills; 130 bpm for the strength training segment

Warm-Up (5 minutes)

Use basic athletic movements to warm up participants. Elevate core temperature and increase dynamic range of motion with large arm movements and hip-opening exercises. Start with basic spinal stretches to release the low back; then perform the following exercises, alternating sides:

Step-Touch

- Bend knees and hinge forward slightly at hips to lower your profile as you step side to side.
- Add large arm movements, reaching forward/back and up/down.

Duck Down

- As you bring feet together on step-touch, squat down low as though you were ducking a strike.
- Keep torso long and use legs to get low.

Body Roll

- Do wide toe taps with hands in guard or ready position.
- Rotate torso and bring elbow down and across body to opposite hip as though you were blocking a strike aimed for your midsection.

Bob and Weave

- Start with wide toe taps. As you shift your weight from side to side (weave), hinge forward at hips and squat deep (bob) as though you were ducking a punch.

Squats With Shoulder Roll

- Squat while reaching both arms forward for balance so you can sit lower.
- As you stand up, create large circles with arms to loosen shoulders.

Knee Strike

- Step to side and pull right knee up and across body.
- Bring left elbow and right knee together as you rotate through torso.

Crescent-Chamber Hip Opener

- From knee strike, create semicircle with knee across front of body, in outward motion.
- Keep hands in ready position, and focus on lower-body movement.

Work Phase 1: Cardio Kickboxing and Athletic Drills (40 minutes)

Alternate between kickboxing combinations and athletic drills to create an interval effect. Perform five to six 5-minute cardio kickboxing sections, focusing on aerobic endurance. Allow time to do an even number of repetitions on each side. Create anaerobic challenges during the athletic drills, which should last 1–2 minutes.

Cardio Combo

- Jab-jab, cross-jab, cross, slip away (duck and slide away in opposite direction from punches).

Athletic Drill

- Step-touch on floor 1x, then on platform 1x; add power and speed so it looks like intense jog (floor/step/floor/step).
- Step-touch with double knee to switch leads; repeat on other side.

Cardio Combo

- Single jabs to front, single-single-double, jab-jab-hook.
- Straddle platform; bob and weave, moving forward and back.

Athletic Drill

- Lunge onto step 1x and ski 4 counts; repeat 3x; step onto platform with repeater knee 2x; step back behind step, and slide over to switch sides; repeat.

Cardio Combo

- Double step 2x, bob and weave, double step, bob and weave, hook 4x.
- Double step, bob and weave with 90-degree turn.
- Double step, bob and weave with 90-degree turn, shuffle forward, double step back.

Athletic Drill

- Toe taps on top of platform; add power and speed.

Cardio Combo

- Straddle platform, step knee strike straddle, step roundhouse straddle.
- Step roundhouse straddle 2x, repeater knee strike straddle.
- Step roundhouse straddle 2x, repeater (knee strike/front kick/knee strike) straddle.

Work Phase 2: Strength With Weighted Bar (15 minutes)

Squat With Shoulder Press (3 sets of 8)

- Hold weighted bar in front of body at collarbone level, parallel to ground. With feet shoulder width apart, sit back through hips to perform squat.

- As you stand up from squat, press bar overhead into shoulder press.

Bent-Over Row (3 sets of 8)

- Hinge forward at hips, legs underneath you in squat position.
- Hold abdominals in tight and keep torso long as you lower bar beneath chest.
- To perform row, squeeze shoulder blades together to activate upper back. Drive elbows up toward ceiling as you squeeze shoulder blades even more toward center of upper back.

Chest Press (3 sets of 8)

- Lie down lengthwise on platform, head supported.
- Hold bar above chest, elbows at 90-degree angle, hands just wider than shoulder width apart. Press bar to ceiling. Do not lock out elbows at top.
- Lower back down to starting position.

Side Lunge (16x, each leg)

- Lunge onto platform from side.
- Hold bar at chest, parallel to ground, and add torso rotation (lunge, rotate over front leg, return to center, step back and repeat).

Balance and Core (10 minutes)

Balancing Roundhouse Kick (2 sets of 8)

- Perform slow roundhouse kicks on one side (use weighted bar to assist with balance).
- Hold one kick at its extension (it should look like hip abduction).
- Roll hips forward and point toes (you should be able to see shoelaces in mirror).
- With leg elevated, pull heel to rear and extend.

Rainbow (16 times)

- With feet wide, knees soft and core engaged, press weighted bar overhead to starting position (like shoulder press).
- Slowly begin lateral flexion, allowing tip of bar to drop down to each side (if you feel pain in lower back, you've gone too far).
- Lower bar to chest if shoulders fatigue.

Cool-Down and Stretch (5 minutes)

Start with rhythmic movements, such as side-to-side lunges; then move into the following sequence:

- Hold lunge to one side and reach opposite arm overhead (extended angle stretch).
- Turn into runner's stretch.
- Step back into hamstring stretch.
- Do spinal stretch as you round up through spine; turn to front and do one more.
- Repeat stretches on opposite side.
- Do arm circles to loosen shoulders.
- Lengthen neck by dropping ear to shoulder, both sides.
- Do final spinal stretch, take a few deep breaths and call it a day.

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BY IRENE MCCORMICK, MS

Sample Class: Stabilization Cardio Interval

Use medicine balls to teach control and awareness.

Do you want to teach purposeful movement patterns in your choreographed classes? By using lower-weight (2-, 4- and 6-pound) medicine balls, students learn to focus on proper alignment, posture and core strength while increasing aerobic capacity. They also learn to slow down and stabilize their spines without bringing intensity levels down.

This workout focuses on balance, agility and anaerobic power. The movements emphasize simultaneous engagement of the anterior lower core and the posterior upper core, so participants need to have some level of body awareness. Be sure to demonstrate how to hold the ball while moving. A simple grapevine changes when you add a weighted ball to the mix. Hold the ball close to the sternum, fingers spread on the sides with wrists slightly flexed. Focus on precise movement, not perfect choreography. Progression and variety are critical when using medicine balls, as injuries can occur if patterns are overly repetitive. Some moves won't match the music exactly. Do the choreography segments several times before plugging them into the 32-count phrases.

STABILIZATION CARDIO INTERVAL DETAILS

FORMAT: high-low and sport-specific/core stabilization class for as many participants as space and equipment allow

TOTAL TIME: 60 minutes

EQUIPMENT NEEDED: 2-, 4- and 6-pound medicine balls; also non-weighted balls for people with wrist, finger or other joint issues (Nonweighted balls still provide a dimension of focus and control.)

MUSIC: mid tempo (128–32 beats per minute)

WARM-UP (5–8 MINUTES)

- Stand with feet under hips (not wider than hips), toes facing forward.
- Slide shoulder blades “down into the back pant pockets.” This will effectively retract and depress the scapulae and engage the muscles.
- Hold ball in front of chest, arms close to sides, elbows lower than hands.
- Keep hands on sides of ball, not beneath it.

Numbers in parentheses indicate the counts for each move.

- March in place holding ball (4 counts); press ball overhead (4 counts).
- Squat 2x, letting ball “fall” between legs and extending elbows (8 counts).
- Lunge back with external spinal rotation (8 counts each leg).
- Repeat with opposite lead.

CARDIOVASCULAR SEGMENT (40 MINUTES)

When the class is ready to begin more intense exercise, add the following segments.

COMBINATION #1

- Step-touch, moving ball in arc from hip bone to hip bone in front of body (8 counts).
- Hop from right to left foot, landing softly (*option:* Switch ball from hand to hand) (8 counts).
- Double step-touch right, and press ball up (*option:* Change to tossing and catching ball) (8 counts).
- Double grapevine right (8 counts).
- Repeat using left lead.

INTERVAL #1

“10, 9, 8, 7, 6, 5, 4, 3, 2, 1!”

- Line participants at one end of room.
- Preview two or more basic skills, such as jumping jacks, imaginary jump rope, cross-country skiing, squats, lunges, etc.
- Participants perform selected skill for 10 counts and then jog to other side of room.
- When they reach other side, they perform second skill for 9 counts and jog back to start until they get down to 1 count. (*option:* Substitute lunges for jogging).

COMBINATION #2

- Do two V steps (right lead), pressing medicine ball out in front of body (8 counts).
- Hold ball chest level and do two jumping V steps (like jumping jacks but jumping forward) (4 counts).
- Jump squat hold, and then jump to neutral (4 counts).
- Repeat using left lead for V step (total 32 counts both leads).

INTERVAL #2

Level-one plyometric drills (moving across exercise space):

- High knees (emphasize vertical height).
- Back kicks (emphasize knee flexion).
- Russian kicks (emphasize precise knee extension and then controlled speed).
- Skipping (emphasize distance).

COMBINATION #3

- Double grapevine right, holding ball at chest level, with shoulders forward, hips squared; maintain athletic stance (8 counts).
- Walk back left to start position (8 counts).
- Lateral shuffle right, holding ball at chest level; maintain athletic stance (8 counts).
- Walk back left to start position; step together on counts 7, 8; grapevine to other side.

Repeat sequence, starting with double grapevine left.

COOLDOWN AND BALANCE TRAINING (15 MINUTES)

March in place while explaining next sequence. Bring participants' rating of perceived exertion down to between 3 and 5 before moving on to balance exercises.

Medicine Ball Wood Chop Squat

PROGRESSION #1:

- Begin in neutral with pelvis, shoulders, toes and knees facing forward, feet hip width apart.
- Squat while holding ball at chest, elbows drawn to sides, shoulder blades down (12–15 reps).

PROGRESSION # 2:

- While in squat, bring ball to right shoulder, then lower to outside opposite knee. Keep sternum and spine upright; ball crosses midline of body (12–15 reps).
- Switch sides.

PROGRESSION # 3:

- Perform as above, but add one-legged balance when moving out of squat (12–15 reps).

Cue balance, neutral stance, steady eyes, spinal alignment, contracted abdominal wall.

- Switch sides.

Single-Arm Overhead Press With Medicine Ball

PROGRESSION # 1:

- Stand with feet under hips, toes forward, hips squared.
- Raise and lower right arm overhead while balancing ball in hand (12–15 reps).
- Switch sides.

PROGRESSION # 2:

- As right arm presses overhead, flex opposite knee and raise foot off ground, balancing on one foot. Lower arm and foot in same sequence (12–15 reps).
- Switch sides.

After you have performed the skill sets, move on to some workout-appropriate flexibility exercises, focusing on the muscles trained, to complete the cooldown sequence.

Irene McCormick, MS, is the recreation and wellness director at Des Moines Area Community College in Ankeny, Iowa. A national presenter, a master personal trainer and an author, she is featured in a new video titled “The Complete Guide to Foam Roller Training for Athletes.”

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BY LAURA SACHS

Route to Relaxation

Teach breath control and awareness to stressed-out participants.

These days, it seems, we're all more familiar with feeling stressed than with feeling calm. Luckily for us, we're designed to relax. The breath is our route to relaxation, and our senses help to personalize the process.

The heart lifts slightly when we inhale and drops slightly when we exhale. Because it is the only muscle in the body that never stops working, it has to have built-in breaks. Exhalations are the heart's resting phases. When we breathe fully, particularly allowing our exhalations to lengthen, we elicit the "relaxation response." The following exercises lead the way.

ROUTE TO RELAXATION DETAILS

Vocal tone is an important part of this class, especially during the guided journey. Entice participants with your speech; the cadence and level are more inviting when you slow down and lower your voice. In this way, you set the stage for repose. Check early on that everyone can hear you, and maintain that pitch.

TOTAL TIME: approximately 30 minutes
EQUIPMENT NEEDED: mats, folded blankets, eye pillows or towels, bolsters or foam rollers

MUSIC: Begin in silence so that the group can focus, and then introduce relaxing, soft music for the guided journey.

STRESS-FREE SCRIPT

Begin by asking, "On a scale of 1–10, 10 being the highest stress level possible, how would you rate your tension level today?" Use the following scripted cues as a guideline to help your class relax.

CAT STRETCH (1–2 MINUTES)

"Begin on all fours on your mat. Exhale, curving the sacrum down as your navel reaches upward. Inhale, still initiating from the sacral area, and extend the sacrum out and back. Repeat four times. Inhale and exhale in a continuous, slow rhythm."

BREATH AWARENESS (5–8 MINUTES)

"Sit cross-legged and place the folded edge of a blanket under your sit bones so that the front of your pelvis relaxes forward and your spine is upright. You may also sit on your heels, legs parallel, with a blanket rolled under your buttocks and between your legs."

1-minute focus: "Close your eyes and count your breaths. An inhalation and an exhalation count as 1. Focus on counting—attend to the process of breathing." *This is an easy way to bring home to students just how quickly or slowly they are breathing.*

"Now, notice everything about your breath. Notice the temperature as it passes through your nostrils. Is your chest lifting and widening? As you exhale, feel the breath move through your throat on its journey out of your nostrils. Your abdominal wall presses inward as you exhale fully. Do you feel calmer, more relaxed?"

4 X 4 (5 MINUTES)

"Inhale for 4 counts and exhale for 4 counts. Pause at the top of the inhalation. Don't force your breath; simply pause. Exhale, and pause at the bottom of the exhalation. Inhale, imagining a feather floating upward, 1 . . . 2 . . . 3 . . . 4. Exhale, imagining the feather floating downward, 4 . . . 3 . . . 2 . . . 1."

1-minute focus: "Raise your arms overhead for 1 minute. Focus on the rhythm of your breath and any other sensations you may notice. Avoid excess effort in this position; relax your shoulders and arms as you reach upward."

SEATED CAT STRETCH (1–2 MINUTES)

"Release your arms and place them on your thighs. Slide your legs out halfway and place the soles of your feet together lightly. Place your arms behind your back, fingers pointing away from your buttocks." *If this position is uncomfortable, instruct participants to place folded blankets under their thighs for support.*

"As you inhale, reach your collarbone and breastbone to the ceiling. As you ex-

hale slowly, draw your navel inward and lower your chin. Keep the movement steady, slow and comfortable. Breathe in, 1 . . . 2 . . . 3 . . . 4; pause. Breathe out, 4 . . . 3 . . . 2 . . . 1, drawing the navel in and down; pause." *Repeat four to six times.*

CONCENTRIC CIRCLES (5 MINUTES)

"Lie back with knees bent and palms resting lightly at your navel area. Your neck and lower back are comfortable and in a neutral position. Feel as if your navel area contains a series of concentric circles. As you inhale, feel the circles widening; . . . as you exhale, feel the circles coming back to center. Enjoy this widening and narrowing. Now, place a bolster or foam roller under your knees for comfort. Palms open, legs relaxed and rolled out." *Distribute eye pillows and blankets.*

1-minute focus: "As you inhale, say the word *soft* quietly to yourself. As you exhale, say the word *belly*."

GUIDED JOURNEY (5–10 MINUTES)

"As you exhale, allow each and every place where your body is touching the mat to release into the floor. Feel as if your body is being cradled at your heels . . . your thighs . . . your buttocks . . . your shoulder blades . . . and the back of your head. As you inhale, breathe in energy. Feel this energy and lightness circulating through your toes and the tops of your feet . . . through the soles of your feet and your ankles. Inhale deeply, feeling this lightness move up through your lower legs, inside out. Feel it pass through the center of your knees into your thighs and pelvis. On your next exhalation, release tension from your pelvic area. Imagine you are filling your pelvic bowl with your breath as you inhale. Feel your pelvis and lower back sink into the mat as you exhale. Now feel as if everything below your waist is floating downstream, gently rocking, releasing tension and fatigue. Experience lightness rising up into your trunk area, circulating through your internal organs . . . your back muscles . . . all the way through your shoulders . . . your upper arms . . . your elbows . . . your

lower arms . . . and your fingers. This lightness pervades your neck muscles . . . your jaw . . . your cheeks . . . and your forehead. Imagine everything above your waist is gently rocking upstream so that your shoulder blades and the back of your head melt into the mat.

“Now imagine you are breathing with your whole body, top to bottom, inside out. Breathe in energy, vitality. Exhale tension, fatigue, deep fatigue. Know that whenever you need to, you can inhale and fill with energy. And in any moment you can let go simply by exhaling. Gently draw your knees to your chest and roll over to one side. Using your arm strength, push yourself up to a seated position.

“Now, how would you rate your stress level on our 1–10 scale? Do you feel relaxed yet ready to meet whatever responsibilities or challenges may lie ahead today? Relaxation reinforces responsiveness. Think of a cat lying around who bounds into action when necessary.”

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A PRACTICAL APPROACH TO PROGRAM DESIGN

Follow along with this case study to put your “book knowledge” into practice.

In my experience as a college professor, I have learned that one of the toughest skills a student must develop is applying knowledge learned in the classroom. Learning the material (especially by rote) is the easy part. But many students struggle when challenged with applying knowledge in real-life situations. The purpose of this month’s column is to help you apply some of the basic skills addressed in previous articles to real-life scenarios. This case study will review exercise screening; risk factor identification and risk stratification; application of the principles of exercise frequency, intensity, type and time (FITT); use of metabolic equations; and calculation of caloric expenditure.

YOUR “REAL-LIFE” CLIENT

Kevin is a 46-year-old male computer technician who, on the advice of his doctor, has come to your facility for an updated exercise program. His health history questionnaire reveals that his father died of a heart attack at 53 years old. In addition, Kevin smoked until 2 years ago. His statistics are as follows:

- total cholesterol = 220 milligrams per deciliter (mg/dl); LDL = 135 mg/dl; HDL = 36 mg/dl
- fasting glucose = 88 mg/dl
- height = 6 feet 2 inches
- weight = 225 pounds, or 102.3 kilograms (kg)
- body mass index (BMI) = 29
- resting heart rate = 59 beats per minute (bpm)
- resting blood pressure (confirmed by physician) = 144/90 millimeters of mercury (mm Hg)

- usual physical activity = low-intensity walking 3 days a week for 30 minutes a session
- VO_2 max (determined by a previous submaximal cardiorespiratory fitness test) = 38 milliliters per kilogram per minute (ml/kg/min)

Kevin is taking a vitamin supplement, as well as medication to help control his blood pressure. His favorite activities are walking, basketball and swimming.

The following 6 steps will allow you to design an appropriate cardiorespiratory exercise program for Kevin.

STEP 1: PRE-EXERCISE SCREENING

Kevin has three positive coronary artery risk factors (hypertension, high cholesterol and positive family history), but because of his age, he automatically falls into the moderate-risk category (ACSM 2000). He can start a moderate-intensity program (50%–70% VO_2 reserve [VO_2R]) without physician clearance, but a physician would have to clear him before he could increase intensity. He should be referred to a dietitian for dietary strategies to improve his cholesterol.

STEP 2: GOAL IDENTIFICATION

Kevin’s goals are to improve his cardiorespiratory fitness by increasing his activity with light jogging and to lower his blood pressure enough to get off medication. According to ACSM guidelines (ACSM 2000), his VO_2 max indicates average cardiorespiratory fitness, so he does have room for improvement. His age-predicted HRmax (220 – 46) is 174 bpm.

A good caloric expenditure goal for Kevin would be 1,500 kilocalories a week (kcal/wk). (No client should go below 1,000 kcal/wk.)

STEP 3: DETERMINING APPROPRIATE INTENSITY

Since Kevin already engages in some physical activity, it is fine to push him into the higher ranges of moderate-intensity exercise (60%–70% for VO_2R and HRreserve [HRR]). A rating of perceived exertion (RPE) of 11–14 can also be used during exercise. Calculate Kevin’s VO_2 range, and then convert the low-end and high-end values to kilocalories per minute (kcal/min) to determine the workload for walking/running or cycling.

VO_2 Range. VO_2R : [$(VO_2max - \text{resting } VO_2) \times \% \text{ intensity}$] + resting VO_2

First perform the calculation in parentheses, using the information about Kevin that you gathered during the pre-exercise screening. (Remember that resting VO_2 is constant for everyone at 3.5 ml/kg/min.)

$38 \text{ ml/kg/min} - 3.5 \text{ ml/kg/min} = 34.5 \text{ ml/kg/min}$

Multiply by 60% for the low end, and by 70% for the high end, and add 3.5:

Low end: $(34.5 \times 0.60) + 3.5 = 24.2 \text{ ml/kg/min}$

High end: $(34.5 \times 0.70) + 3.5 = 27.7 \text{ ml/kg/min}$

Kevin’s target VO_2 range is 24.2–27.7 ml/kg/min.

Heart Rate Range. HRR (using Karvonen formula): $[(HRmax - HR_{\text{resting}}) \times \% \text{ intensity}] + \text{resting HR}$

Perform the calculation in parentheses: $174 \text{ bpm} - 59 \text{ bpm} = 115 \text{ bpm}$

Figure the low and high ends by multiplying by the appropriate percentage and adding 59:

Low end: $(115 \times 0.60) + 59 = 128 \text{ bpm}$

High end: $(115 \times 0.70) + 59 = 140 \text{ bpm}$

The target HR range is 128–140 bpm.

Speed. To calculate running speed on flat ground, use the ACSM metabolic equation for running and convert VO_2 to speed:

$VO_2 = (0.2 \times \text{speed}) + (0.9 \times \text{speed} \times \text{grade}) + 3.5$

To calculate the low-end speed:

$24.2 = (0.2 \times \text{speed}) + (0.9 \times \text{speed} \times 0\%) + 3.5$

When you multiply by zero (as in the second part of the equation), you get zero, so this part of the formula cancels out:

$24.2 = (0.2 \times \text{speed}) + 3.5$

Subtract 3.5 from both sides:

$20.7 = (0.2 \times \text{speed})$

Divide each side by 0.2:

Low-end speed = 103.5 meters per minute (m/min)

Divide m/min by 26.8 to convert to miles per hour (mph):

Low-end speed = 3.9 mph (Round up to 4 mph for a brisk walk/slow jog.)

By substituting 27.7 for 24.2 in the previous formula, you can calculate the high-end speed: 121 m/min, or 4.5 mph (slow jog).

Kevin's target speed range is 4–4.5 mph.

Kcal/Min. Now convert VO_2 to kcal/min. Use the following steps to find the low end:

- Multiply 24.2 ml/kg/min by 102.3 kg (Kevin's weight) to get VO_2 in milliliters per minute (ml/min):

$24.2 \times 102.3 = 2,475.6 \text{ ml/min}$

- Divide ml/min by 1,000 to convert to liters per min (L/min):

$2,475.6 \div 1,000 = 2.48 \text{ L/min}$

- Multiply L/min by 5 kcal/L to get kcal/min:

$2.48 \times 5 = 12.4 \text{ kcal/min}$

Use these same steps with a VO_2 of 27.7 to get the high-end kcal/min (14.2 kcal/min).

The target kcal/min range is 12.4–14.2.

HRR (using Karvonen formula): $[(HR_{\text{max}} - HR_{\text{resting}}) \times \% \text{ intensity}] + \text{resting HR}$

STEP 4: DETERMINING APPROPRIATE FREQUENCY AND TIME

Since you have identified Kevin's kcal/wk goal and calculated his kcal/min, you can base your frequency and time on these

values.

Frequency. Kevin's initial kcal/wk goal is 1,500. He should expend about 300 kcal/session at the least, and 500 kcal/session at the most. If you set 300 kcal/session as a beginning goal, Kevin will need to exercise 5 days a week (5 days \times 300 kcal/session = 1,500 kcal/wk). Since he has already been exercising 3 days a week, he should be able to tolerate 5 days of moderate-intensity activity to reach the goal.

Time. Duration of exercise can be based on the kcal/min and kcal/session goal. You can calculate this time as a range using the kcal/min range:

Low-end time: $300 \text{ kcal/session} \div 14.2 \text{ kcal/min} = 21.1 \text{ min/session}$

High-end time: $300 \text{ kcal/session} \div 12.4 \text{ kcal/min} = 24.1 \text{ min/session}$

The target time range is 21–24 min/session to reach the kcal/session goal.

Since Kevin is already exercising 30 min/session 3 days a week, he may be able to reach the higher kcal/session goal of 350–400 kcal/session.

STEP 5: CHOOSING THE TYPE OF ACTIVITY

It is a good idea to stick initially with Kevin's favorite activities and adjust his program accordingly. However, it is also important to eventually expand his options to include other recreational activities—such as racquetball, tennis or other sports—to provide variety and ensure program adherence. For these activities, it is best for him to monitor HR and RPE to make sure he is maintaining an appropriate intensity.

STEP 6: PROGRESSION AND REVIEW

Give Kevin an idea of how he should progress through his program from a frequency, intensity and time standpoint. General guidelines are (1) to increase intensity by about 5% when the upper ranges become easy to perform, and (2) to increase volume (frequency and time) by about 10% each week (ACSM 2000; Heyward 2002). Remember, intensity and volume share an inverse relationship: If you increase one, you should decrease the other. Changing just one FITT component at a time as the client progresses ensures adequate adaptation to the new

Duration of exercise can be based on kcal/min and kcal/session goal.

change before you increase other areas.

Since Kevin is at a little higher risk than the "average" client, it would be wise to maintain this initial program until you are confident he is adapting properly. A quick referral and call to his physician would be needed before progressing further.

About 6 months into the program, Kevin should be re-evaluated using a sub-maximal cardiorespiratory fitness test, and he should return to his physician to get his blood pressure rechecked. Set a time to meet with Kevin to review his goals and change his program as needed.

TRAINING BY THE BOOK

If you can follow and apply these steps in your practice, you should be able to design most any type of cardiorespiratory program for beginners. Remember, the most accurate way to determine exercise intensity and caloric expenditure requires the use of VO_2 , so base your program design upon the intensity you calculate using this factor. You can supplement this calculation with one of the HR methods and/or with subjective measures such as RPE or the talk test. When used in combination, these methods are far more effective for determining intensity than any one of them is when used alone. An appropriate progression plan will also be a useful guide for your clients and is a must for long-term planning.

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BY ROB GLICK

Sample Class: Dance-Inspired Cardio



Give students
an excuse to lose
themselves in music.

As group exercise studios fill with myriad equipment options, a class that relies only on great music, a motivating instructor and a room full of eager participants is a refreshing change. “Dance-Inspired Cardio” blends familiar high-low steps with mambo, chassés, leaps, holds, kick-ball changes, turns and cha-chas for a dance-like experience. When students feel that they’re dancing, they lose themselves in the sheer pleasure of moving and reap the cardiovascular benefits. This can be the most fun some people have all week.

The primary goal in a dance-based class is to respect it as a cardiovascular activity designed to raise the heart rate; however, students can still feel that they’re performing. Don’t worry if you have little or no dance background. You don’t have to move like Janet Jackson or Justin Timberlake (I know I can’t!). Just make sure you teach a routine that helps *students* succeed. The most elaborate routine goes unappreciated if no one can do it!

DANCE-INSPIRED CARDIO DETAILS

FORMAT: cardio dance

TOTAL TIME: approximately 60 minutes

EQUIPMENT NEEDED: a mat if

you are going to include core work; otherwise, no equipment necessary

MUSIC: 135–55 bpm

Music selection and speed depend on style, movement complexity and the number of double-time rhythms used.

WARM-UP (6–8 MINUTES)

Start with a *simple* combination to acclimate bodies and to pull everyone in. Allow students to feel successful early on. As the choreography gets more elaborate, participants will feel less discouraged because they have already experienced success. On the other hand, if you confuse a student in the beginning, you might lose her permanently. First impressions are lasting! Include a rhythmic and dynamic stretch if you feel it will help prepare the class mentally.

Combination 1

Final Product:

- rock behind on each side (10 counts)
- 6-count mambo
- alternating knees (8 counts)
- mambo chassé, double pivot turn (8 counts)

Instruction: Start by marching. Change the march to a double march right and a double march left, followed by 6 counts of marching in place. Next, transform the 6-count march into a 6-count mambo. Introduce alternating knees. Take it from the top; hold alternating knees for 16 counts.

Teach a mambo chassé on each side. Add a 4-count march after the chassé. Change the 4-count march to a mambo (option: change the mambo to a pivot turn). Put everything together from the top. Optional final layer: Step behind on the double march.

Note: Everything in this combination is symmetrical. Introduce each movement in order, teaching the 8 counts with the lead-leg change last.

MAIN BODY (35–40 MINUTES)

Combination 2

Final Product:

- march forward (4 counts)
- box step on count 5, moving back; box step again on count 8, followed by a 6-count mambo (16 counts)
- pivot turn on counts 1 and 2; chassé to the back twice on counts 3 and 4, 5 and 6; mambo on counts 7 and 8 (8 counts)
- chassé forward on counts 1 and 2; march or turn on counts 3 and 4, 1 V-step (4 counts)

Instruction: Teach the second half first since the second 16 counts have the lead-leg change. Start by teaching the rhythm: 2 counts of marching, two chassés, two marches, and then a chassé and a 4-count march. Once the rhythm is established, add the directional change. The rhythm must be set first because when you add direction, participants face the back of the room.

Introduce 16 counts of marching before the second half of the combo. Layer the box step on counts 5 and 8, followed by the 6-count mambo. Move the first 4 counts of the marching forward, and use the box step to move backward. Optional final layer: Add a turn to the 2-count march after the forward-moving chassé.

Combination 3

Final Product:

- starburst 2x, extension march back (8 counts)
- grapevine, double lunge back (6 counts)
- single knee lift 2x, turn back (4 counts)
- grapevine, double lunge back (6 counts)
- single knee lift 2x, turn back (4 counts)
- chassé rock back (4 counts)

Instruction: Teach a step out, abducting the leg and marching for 2 counts

("starburst"). Repeat on the other side. Take the moves high or low to add intensity. Next, teach four grapevines, four single and four double curls on each side. Change the order so that after the grapevines you do the double curls first. Change the order again so that you have one double curl, two single curls, one double curl, two single curls. Change the double curl to a lunge back. Change the order again so that the lunge back goes at the end of the grapevine, followed by single curls. Layer the single curls with a curl that turns to the back.

Return to the top of the sequence (starburst, grapevine, etc.) and finish with 4 counts of step-touches. Introduce the chassé rock back. Go back to the top, replacing the step-touches with a chassé rock back. Repeat on left.

Combination 4

Final Product:

- chassé on the diagonal 3x, pivot turn (8 counts)
- stomp 2x (4 counts), mambo (4 counts)
- chassé on counts 1 and 2, plant foot on count 3, lift foot on count 4 and place foot down on count 5; minimambo on counts 6, 7 and 8
- minimambo 2x, turn (8 counts)

Instruction: Do the chassé on the diagonal three times with the pivot turn,

which changes the lead leg. You will face the back diagonal at the end, so teach the next part facing forward to establish the move. This will help ensure that everyone sees the movement before you change directions. Add the movement with the directional change. If appropriate, add the turn after the last minimambo, but only at the very end.

COOLDOWN (5 MINUTES)

Teach a very simple, rhythmic routine to allow the heart rate to come down slowly. Spend at least 5 minutes stretching the major muscle groups used in the workout. You may also incorporate 5–7 minutes of core work.

Everyone has a dancer inside just clawing to get out. Open the door, turn up the beat, and let everyone feel comfortable moving their feet.

Rob Glick has presented at hundreds of fitness conferences in more than 30 countries. The 2005 ECA World Fitness One Body One World (OBOW) award recipient for Best Male Presenter, Rob is the national program developer for Crunch Fitness and a master trainer for Schwinn®, BOSU® Balance Trainer and Body Bar Systems®. Contact Rob through his website, www.roblick.com.

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helpful hints

- **Know the base moves (for example, the base move of a 6-count mambo and knee is a march and knees).**
- **Recognize where the lead leg changes, and build from there.**
- **Take your time breaking down the movements.**
- **Layer, layer, layer (and don't be afraid to go back to an earlier layer).**
- **Make one choreography change at a time.**
- **Don't rush your breakdowns.**
- **Keep a close eye on your students; stop adding complexity if you start losing them.**
- **Enjoy the process—it's all cardio!**
- **Build natural lead-leg changes into your combinations for less cuing and better flow.**
- **One way to get comfortable teaching a dance-influenced class is to use Latin music. You can't help but dance!**

Pregnancy and Postpartum Exercise

There is no reason for a “pregnant pause” in your healthy pre/postnatal client’s exercise program.

Your pregnant clients may not be up to training for their first triathlon, but they don’t have to skip their workouts altogether. In fact, consistent exercise will help clients as they prepare for childbirth and, later, as they return to prepregnancy activity levels. Benefits of regular exercise during and after pregnancy include the following (Garshasbi & Faghih Zadeh 2005; Mayo Clinic 2004):

- reduced incidence of back pain
- boosted energy
- fewer problems with constipation
- increased muscle strength and a superior cardiovascular condition, which can facilitate labor and delivery
- improved endurance, to prepare for the possibility of a longer labor
- improved mood states
- reduced postpartum recovery time

DESIGNING AN APPROPRIATE PROGRAM

Dealing with many of a pre/postnatal client’s hormonal, metabolic, respiratory, cardiovascular and musculoskeletal changes is beyond the scope of practice for fitness professionals. Getting your client’s exercise plan approved by her physician before getting started—and then maintaining an open dialogue with the physician throughout the pregnancy and postpartum period—is essential.

Any fitness professional who works with pre/postnatal women should be familiar with the guidelines developed by the American College of Obstetricians and Gynecologists (ACOG 1994b). Of course, there are always exceptions to guidelines; your client’s doctor will let you know if any of the exceptions apply to your client.

Research suggests that during pregnancy, women can continue to derive

health benefits from regular exercise (at least three times per week). No data indicate that limiting intensity or lowering target heart rates is necessary to avoid potential adverse effects. With a doctor’s approval, some exercises may be continued at intensities similar to those maintained prior to pregnancy.

According to the ACOG guidelines (ACOG 1994b), a woman who does not have any specific risk factors for adverse maternal or perinatal outcomes can exercise throughout her pregnancy if she takes these precautions:

- Avoids exercise in the supine position after the first trimester (ACOG 1994b), since this position can lead to a reduction of maternal heart rate and decrease the flow of oxygenated blood to the baby.
- Avoids prolonged periods of motionless standing.
- Listens to her body. As the pregnancy progresses, there is less room for lung expansion, and the pregnant exerciser may “run out of breath” more quickly. Realizing that decreased oxygen is available, she should modify her exercise intensity and stop when fatigued.
- Chooses activities that minimize the loss of balance. The pregnant woman’s changing body affects her center of gravity, so it is best to avoid single-leg movements and exercise on uneven surfaces. Non-weight-bearing exercises, such as cycling or swimming, minimize the risk of injury.
- Avoids any type of exercise that carries the potential for even mild abdominal trauma (e.g., downhill skiing, contact sports).
- Consumes an adequate diet. During pregnancy 300 additional kilocalories per day are required to maintain metabolic homeostasis.
- Ensures adequate hydration, appropriate clothing and optimal environmental surroundings during exercise to augment heat dissipation, especially during the first trimester.

Since many of the physiological and morphological changes of pregnancy persist 4–6 weeks postpartum, prepregnancy exercise routines should be resumed gradually, based on a woman’s physical capability.

CONTRAINDICATIONS TO EXERCISE

The following conditions should be considered contraindications to exercise during pregnancy (ACOG 1994b):

- pregnancy-induced hypertension
- preterm rupture of membranes or preterm labor during the prior or current pregnancy

red flags

These symptoms are messages from your client’s body, telling her to slow down:

- fatigue
 - dizziness
 - heart palpitations
 - shortness of breath
- Ela Lewis, MSPT, NCS, recommends that your client “seek immediate medical advice if no fetal movement occurs for 30 minutes after exercise or if there is fetal heart rate deceleration.” In addition, if any of the following signs occur, **immediately** terminate exercise and have your client check in with her doctor:
- pain in the back or pelvis
 - vaginal bleeding or fluid leakage
 - preterm labor
 - headache and/or visual disturbance
 - muscle weakness or unusual pain
 - persistent dizziness or lightheadedness
 - unusual shortness of breath (e.g., prior to exercise)
 - racing heartbeat or chest pain
 - uterine contractions

Sources: ACOG 1994a; ACOG 1994b.

- incompetent cervix
- persistent second- or third-trimester bleeding
- intrauterine growth retardation
- multiple gestation

In addition, women with certain other conditions—including chronic hypertension or active thyroid, cardiac, vascular or pulmonary disease—should be carefully evaluated to determine whether an exercise program is appropriate.

MODES AND INTENSITY OF EXERCISE

The appropriate mode of exercise for your pregnant client depends to a great extent on how fit she was before her pregnancy. A previously sedentary client must begin slowly and progress gradually. Swimming and other types of aquatic exercise are preferred for the pre/postnatal client because they provide the benefit of buoyancy, taking weight off the joints and allowing the client to feel more comfortable. Other possibilities include yoga and Pilates (geared to pregnant clients), walking, or exercise on cardiovascular machines. Performing a mix of cardiovascular, strength and flexibility exercises is an option.

The “talk test” is useful for determining intensity with a pregnant client. If she cannot hold a conversation with you while exercising, the intensity is too high.

RESISTANCE EXERCISE

Colleen M. Fitzgerald, MD, the medical director of the Rehabilitation Institute of Chicago Women’s Health Rehabilitation and an assistant professor at Northwestern University Feinberg School of Medicine, advises that the “key muscles to strengthen are the transversus abdominis muscles because they work hand in hand with pelvic floor [muscles].” In addition, Fitzgerald believes that women with strong transversus abdominis muscles will have much less postpartum muscle dysfunction and weakness.

General Resistance Training Guidelines

Clients who had been strength training regularly prior to the pregnancy can continue, but they should reduce intensity and change positions when necessary; for example, by using the seated leg curl machine instead of performing a prone hamstring curl. In addition to the

general exercise guidelines outlined above, clients should

- always breathe through exercises (avoiding the Valsalva maneuver);
- be cautious of rapid positional changes, including bending over quickly with the head below chest level, since these movements may cause dizziness; and
- aim for maintenance, not hypertrophy.

Exercises

Kegel Exercises. Kegel exercises strengthen the pelvic floor, preparing it for labor and delivery, and help with sphincter control.

- Sit comfortably with legs apart and back supported by a chair. Keep the abs relaxed and legs still, and contract the pelvic-floor muscles as if stopping the flow of urine.
- Hold for a count of 10, then relax. Perform multiple sets of 15–25 repetitions a day.
- Do not perform this exercise while urinating, as this can increase the risk of a urinary-tract infection.

Transversus Abdominis. Your favorite transversus abdominis exercises—for example, dead bugs or bicycles—can be used, as long as you keep in mind the precautions about exercising in the supine position after the first trimester.

Postural Exercises. Keeping the postural muscles strong is important to support your client’s ever-changing body.

- Seated row (1–2 sets of 10–15 reps): Use cables or tubing and modify position.
- Quadruped cat-cow (anterior and posterior pelvic tilting), or quadruped arm/leg lift (1–2 sets of 10–15 reps): Work the core and postural muscles while on all fours (to avoid the supine position), relaxing while inhaling and then tightening the muscles while exhaling.

Squats and Lunges. These functional exercises prepare the client’s body for lifting a baby, picking up toys, pushing strollers and other “new mom” activities. Perform 1–2 sets of 10–15 reps.

FLEXIBILITY TRAINING

Feel free to use your favorite stretches for the following muscle groups (3 reps, holding for 30 seconds each), but pay attention to the client’s position, avoiding supine after the first trimester.

- hip flexors
- iliotibial band

- hip internal rotators
- piriformis
- adductors
- low back
- anterior shoulders
- pectorals

POSTPARTUM EXERCISE

Women can usually begin gentle and casual walking within the first 2 weeks postpartum. Light upper-back exercises, heel slides and ankle pumps/circles can also be resumed.

“I think patients can definitely start exercising abdominals by the 6-week postpartum/post-op mark if no medical contraindications (for example, incision precautions) exist,” reports Fitzgerald. “I think some high-level patients could do it even sooner, say at 3 weeks.”

After a client has passed the 6-week postpartum period and been cleared by her physician to go back to her prepregnancy exercise routine, the return should be gradual. Pay close attention to her subjective and objective responses to exercise. Although most of the physiological and morphological changes are most notable for the first 4–6 weeks postpartum, many experts agree that the muscles, tendons and joints do not return to their prepregnancy state for at least 9–12 months (ACOG 1994a). Fitzgerald suggests, “Recovery can be maximized if the exercise program is designed properly for those important first 6 months.”

EXERCISE AFTER A CESAREAN SECTION

After a C-section, isometric and gentle stretching and strengthening exercises, as well as casual walking, can be started right away unless there is heavy bleeding; pain; or breast infection or abscess.

Ela Lewis, MSPT, NCS, a physical therapist specializing in women’s health and a certified specialist in neurology, suggests diaphragmatic breathing, pelvic tilts, hip lifts, pelvic-floor exercises and walking. She advises, “There should be no pain, and the [client’s] physician should be aware of any form of exercise program that is being started.”

ACOG recommends that clients who have had a C-section should return to prepregnancy exercise no sooner than 6 weeks after giving birth. Again, this should be cleared by the client’s physician.

It may take 2–6 months before a woman feels she is completely recovered and back to prepregnancy form.

YOUR ROLE IN THE BLESSED EVENT

Working with a pregnant or postpartum client is both demanding and rewarding. If you pay close attention to the guidelines outlined here, consider the dynamic needs of the individual client and maintain regular contact with her physician, you will have the wonderful opportunity to guide your client safely through one of the most exciting transitions of her life.

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Resources

In 2003 the Society of Obstetricians and Gynaecologists of Canada (SOGC) and the Canadian Society of Exercise Physiology (CSEP) published recommendations for exercise during pregnancy and the postpartum period (Davies, G.A.L., et al. 2003. Joint SOGC/CSEP clinical practice guideline: Exercise in pregnancy and the postpartum period. *Canadian Journal of Applied Physiology*, 28 [3], 329–41). Because the ACOG guidelines are still considered the standard in U.S. medical circles, to avoid any potential liability, American fitness professionals should abide by the ACOG guidelines when any discrepancies exist between the two sets of recommendations. Nevertheless, readers may be interested in checking out the newer Canadian guidelines, which were based on sound research.

The Dynamic Warm-Up

Structure a warm-up that prepares your clients' minds and muscles for vigorous activity.

The next time you are at the gym or on the sidelines at a game, take note of what others around you are doing to prepare themselves for activity. Some people do nothing, simply commencing their activity of choice. Others perform short-duration static stretches, or a combination of light cardiovascular activity followed by static stretching. These people may be setting themselves up for decreased performance or even injury by failing to adequately prepare for the demands of their chosen activity (see "Pre-Exercise Stretching and Performance" on page 44 of this issue).

The Demands of Activity

Vigorous activity—whether sports- or fitness-related—places a number of demands on the body. Sports require movements in multiple directions, at different speeds and through various ranges of motion to enable participants to respond appropriately to elements of unpredictability in the environment. Many sports also require sudden changes in body position; for example, when snowboarding through moguls, cutting to run down a soccer opponent or reacting to a hit or a fall. Improving the range of motion (ROM) across joints is just a start. Muscles must be both extensible and reactive to reduce the risk and severity of injury and prepare for explosive efforts.

Workout programs and exercise classes also challenge different muscle groups at various tempos and in multiple planes of movement. A mentally alert client whose muscles and nervous system are pre-aroused will be at less risk of injury and will exert more effort and achieve greater precision throughout the workout program.

A dynamic warm-up enables the athlete or exerciser to begin the game or

training session ready to meet the demands of the activity at maximal intensity. The goal is to optimize performance and reduce the incidence of injury through increased muscle temperature, muscle compliance and efficiency of physiological responses (Safran et al. 1988).

Programming Considerations

The warm-up should be performed as close to activity time as possible and segue right into the main workout. Approximately 10–15 minutes will activate the nervous system without causing fatigue. Exercises should work both sides of the body. Experienced clients can perform 1 set of 12–15 reps of about 15 exercises; beginners might start with 2–3 sets of 10–12 reps of five to seven exercises.

A dynamic warm-up often focuses on either movement or strength and stability. Movement drills are best for workouts that emphasize speed, agility, quickness and conditioning, whereas strength and stability drills are good preparation for resistance training. For sports participation, a mix of movement, strength and balance is most effective.

For **movement warm-ups**, begin slowly, moving through a full ROM with low-impact deceleration. Gradually increase the tempo while decreasing the ROM and working to shorten the time between the end of the eccentric (muscle-lengthening) and start of the concentric (muscle-shortening) movements. Progress in the following order:

1. linear movement
2. angled movement
3. lateral movement
4. crossover patterns
5. multiple direction change (combining known patterns with the unpre-

dictable)

For **strength warm-ups**, begin from the inside out, targeting the core musculature first; then move from the ground up. Alternatively, employ blended exercises that work both legs and upper body. As the warm-up advances, increase ROM and tempo. Use whole-body exercises and integrate instability to achieve greater focus and muscle recruitment.

Sample Movement-Based Exercises

1. Cool Walk

Purpose: mobility through ankle, knee and hip joints

- Stand in athletic position (feet shoulder width apart, core set, knees flexed and weight equally distributed), with hips square to intended direction of movement.
- Travel by performing an opposite-arm-to-leg movement, driving knees high and using full extension at ankles, knees and hips.
- Dorsiflex in preparation for heel strike; plantar-flex to rise on toes.

Tip: Incorporate a skip for progression and increased intensity.

2. Crane Toe Touch

Purpose: nervous-system activation through balance challenge

- Stand in single-leg athletic position, hips square to intended direction of movement.
- While balancing on one leg, slowly flex forward at waist under controlled tempo.
- Touch weight-bearing foot with hand of opposite arm.
- Pause in low position before extending at hip to return to start position.
- Step forward with other leg and repeat

toe-touch on opposite side.

Tip: Focus on a fixed point in the distance to maintain stability.

3. Linear Lunge With Upper-Body Rotation

Purpose: mobility and progressive ROM in lower body; nervous-system activation through balance challenge; rotation through core

- Stand in single-leg athletic position, hips square to intended direction of movement.
- Step forward into lunge position and progressively rotate upper body over front leg.
- Pause in low position before stepping forward with opposite leg and rotating in opposite direction.

Tips: Rotate upper body, including shoulders, as a whole. Avoid flexing forward at waist while rotating.

4. Reach-and-Pull Back Pedal

Purpose: mobility and progressive ROM in lower body; nervous-system activation through balance challenge

- Stand in split squat position, right leg back, hips square.
- With minimal vertical displacement (staying at same level), reach back with left leg while cycling arms, ending up in split squat with right leg forward.
- Repeat movement while traveling backward.

Tip: Maintain shoulder width foot placement with each step.

5. Open Sumo Squat With Overhead Press

Purpose: linked-system ROM through upper and lower body (facility for sequentially linking joints and muscles along kinetic chain); coordinated nervous-system activation from lower to upper body

- Stand in athletic position, medicine ball held with two hands at chest height.
- Simultaneously extend at ankle, knee and hip into tall position while extending arms to lift ball overhead.
- Pivot on front foot to open 180 degrees before lowering back into athletic position, flexing at ankle, knee

and hip and bringing ball back down to chest level.

Tip: To progress, execute as above with a 180-degree pivot backward.

6. Lateral Shuffle

Purpose: development of lateral movement patterns; progressive ROM in lower body

- Stand in athletic position, one foot anchored at medial edge of other foot, weight balanced between both legs.
- Flex hips and quickly shift weight to trail leg (opposite to intended direction of movement), initiating movement from forceful extension of ankle, knee and hip of trail leg.
- Reach laterally with lead foot, absorbing direction change through linked-system flexion of ankle, knee and hip.
- Stabilize at perfect point of balance and move to next shuffle step.

Tip: Avoid vertical displacement by staying at one height throughout movement.

7. Lateral Crossover Squat

Purpose: development of lateral crossover movement patterns; progressive ROM in hips and gluteals

- Stand in athletic position.
- Moving laterally, cross left leg in front of right leg, moving down into low position.
- Rotate to return hips and chest to square position before stepping into athletic position with left leg in lead.
- Continue, alternating legs.

Tip: Avoid flexing forward at waist while striving to keep hips and shoulders square.

8. Lateral Bound and Stick

Purpose: transitional balance; ability to decelerate

- Stand on one leg, chest up and knee flexed.
- With arms leading, extend at ankles, knees and hips to bound out at 45 degrees onto opposite leg.
- Flex at ankles, knees and hips to absorb landing and maintain balance.
- Continue, alternating legs.

Tips: Dorsiflex at ankle prior to landing to provide a stable base for absorbing force and producing force in opposite direction. To progress, link each bound with the next, decreasing time between end of

absorption phase and start of next bounding movement.

Sample Strength-Based Exercises

1. Single-Leg Balance With Partner Taps

Purpose: core stability; balance

- Partner A stands in single-leg athletic position.
- Partner B applies taps to Partner A's body at various heights and locations, while Partner A makes small adjustments to maintain balance before next tap.

Tip: Partner A should focus on a fixed point in the distance to help maintain balance.

2. BOSU® Balance Trainer Push-Up With Self-Shaking

Purpose: core stability; recruitment of shoulder stabilizers

- Lie prone in push-up position with hands on BOSU trainer, flat side up.
- Using a consistent tempo of 2 seconds up and 2 seconds down, perform push-ups while shaking BOSU side to side and forward and backward.

Tips: To increase intensity, narrow base of support by bringing feet closer together. To decrease intensity, widen base of support.

3. Partner Cooperative Towel Row

Purpose: nervous-system activation; recruitment of shoulder stabilizers

- Two partners stand in athletic position, each grasping one end of towel.
- Partner A performs rowing motion by flexing at elbow, bringing hands in close to rib cage and finishing at sternum level, with scapulae retracted.
- Partner B provides resistance by extending at elbow.
- Partners reverse roles.

Tips: Avoid flexing forward at waist. Partner B should provide enough resistance to challenge movement without breaking down Partner A's mechanics.

4. Single-Leg Squat to Contralateral Dumbbell Overhead Press

Purpose: nervous-system activation; balance challenge; linked-system strength

- Stand in single-leg athletic position, holding dumbbell at shoulder height in hand opposite to standing leg.
- Initiating power with loaded leg, triple-extend at ankle, knee and hip while simultaneously pressing dumbbell overhead.
- Pause in top position before linking lowering phase of dumbbell with return to low athletic position of lower body.

Tip: Aim for fluid linking of upper and lower body.

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how effective is static stretching?

A traditional warm-up procedure often uses brief linear cardiovascular work to “break a sweat” and then follows that with static stretching. The aim is to raise the core temperature of the body while increasing the delivery of blood to the working muscles. But during the static-stretching phase, the body begins to remove excess body heat, so the increase in body temperature from the initial aerobic warm-up is lost. Even a layperson might wonder how holding stretching poses could prepare the mind and muscles for explosive, dynamic action.

Indeed, current research supports that preactivity static stretching serves to shut the body down, slowing nervous-system activity, elongating muscle fibers and allowing the body to cool off—leaving the athlete ill-prepared to jump into dynamic activity. Decreases in motor unit activation and firing frequency and altered reflex sensitivity are suggested as the mechanisms of stretching-induced decreases in force production (Fowles, Sale & MacDougall 2000).

A pre-activity program should set up the participant to mentally and physically handle best outputs, and static stretching does not accomplish that goal.