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SPRING 2018

VOLUME THIRTY-SIX // NUMBER TWO

ON THE COVER

34 SAY YES WHEN OPPORTUNITY KNOCKS
Fitness guru Melanie Douglass believes fitness is a lifelong, rewarding experience, and she wants to share it with everyone.
BY SHIRLEY ARCHER, JD, MA

COVER PHOTO BY FOTOFLY

PHOTO: FOTOFLY, SALT LAKE CITY, 2017

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AMERICAN FITNESS

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LAURIE McCARTNEY, PRESIDENT

TAKE FIVE

CHECK OUT FIVE OF OUR FAVORITE HIGHLIGHTS FROM THIS ISSUE!

18 HALF IS MORE!
How the 30-minute training model may radically improve your business.

23 CEU CORNER: ROLLING OUT SMR SCIENCE
Work out those anatomy sticking points with facts and techniques from this research review.

34 ON THE COVER: THE POWER OF YES!
Melanie Douglass has a few secrets for turning perspiration into inspiration.

42 BEYOND THE YOGA MAT
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Enhancing structural and movement efficiency for performance.

POWERING FORWARD

Spring has officially sprung (regardless of what Punxsutawney Phil saw on Groundhog Day) and, with that, a new excitement for what the future holds. With the Bikini Body, Summer Slim-Down and Six-Pack Abs challenges fast approaching, I see this as an opportunity to broaden the conversation to include what's happening on the inside. As you have told us time and time again, it's not clients' *extrinsic* seasonal aspirations that serve as your deep source of inspiration: It's the opportunity to help your clients make a healthy holistic change.

What is *your* next step toward that goal this spring? Is it preparing for a certification or specialization exam, moving into a management position, or exploring an entrepreneurial endeavor? Turn to page 34 to see how Melanie Douglass used the power of saying YES! to hit all of these goals and enjoy a fulfilling and diverse fitness career. We're also sharing five business strategies for taking the leap into group ex management and a model to help you and your clients reap maximum benefits from a 30-minute training session.

While those summertime goals are probably here to stay, we'll help you take them to the next level. Indoor cycling instructors, for example, can show clients how (and why) to boost watts, beyond fixating only on calorie burn. (Turn to "Power in Motion" on page 54 to give them the ride of their life.) Also, NASM Master Instructor and international presenter Rick Richey, MS, will take a deep dive into what a killer core really is, why it's more important than a six-pack, and how to help your clients get one. Check it out on page 50.

THE WONDERFUL THING ABOUT HAVING A CAREER IN THE FITNESS INDUSTRY IS THAT THERE ARE SO MANY OPPORTUNITIES TO PUT YOUR PASSION INTO ACTION.

Spring is a season bursting with renewal and joy. What a perfect time to incorporate more feel-good approaches in your fitness programs, rather than always going for as much intensity as possible. More and more research and programming are focusing on the need for recovery experiences for the sake of both body and mind. In this issue, we feature three performance-enhancing programming options: self-myofascial release (SMR), yoga and recovery runs. We'll show you why they work (with a bit of the science woven in) and how to roll them into your practice.

The wonderful thing about having a career in the fitness industry is that there are so many opportunities to put your passion into action, whether fitness, for you, is a full-time or part-time endeavor. This spring, I encourage you to push past your previous goals to become an even more powerful inspiration to your clients and classes.

Yours in health,

Laurie McCartney
President – Global Fitness & Wellness Solutions

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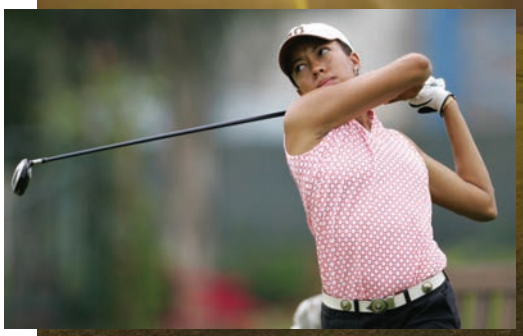
BY LAURA QUAGLIO

Training Edge [INDUSTRY NEWS, INSIGHTS & TOOLS]

GOLF CLIENTS? HELP PERFECT THEIR SWING FOR SPRING



PRO GOLFER ANDIA WINSLOW, NASM-GFS (SHOWN SPRINTING WITH HER FAVORITE CLUB), SAYS SPEED TRAINING CAN ENHANCE TORQUE.

Certified personal trainers have a unique opportunity when working with clients who spend time on the greens, says golf professional Andia Winslow, an NASM Golf Fitness Specialist and fitness trainer. "You can empower these clients to think of themselves—and to train—as athletes," she says.

"This paradigm shift," explains Winslow, "will impact how recreational golfers prime their bodies pre-round and properly recover post." An insufficient or nonexistent "prehabilitation" or warmup, she says, is often the cause of injuries that golfers blame on overuse. "Golfers hop out of the car, head straight to the tee and expect their bodies to perform seamlessly in a move that is highly unnatural. Fit pros can help re-educate the golf masses by rhetorically asking, 'How would an elite athlete prepare for a round of golf?' and then creating programming to set their clients up for success."

American Fitness asked Winslow for advice on putting this paradigm shift into practice in the gym to help golfers improve their swing. Here are some of her suggestions:

Train in multiple planes. "The golf swing is a compound movement that engages the body through several planes of motion simultaneously," notes Winslow. These forces are key in any type of sports moves, such as making lateral cuts in soccer and football or doing leaps and landings in basketball. "Footwork makes the dream work!" she adds. Ankle mobility, she says, should be a key area of focus prior to golf season.

Build foundational strength. "A stronger and more sound base will help prevent injury and other compensations that will creep into the golf swing on-course," she says. "Strength helps, sure, but it's lower-body stability and controlled rhythm that really create and maintain power and speed during the swing." Design programming to improve stability of the hips and core (see page 48), as well as train the glutes and hamstrings.

Speed it up. "Here's a surprising and fun way to train as an 'athlete' golfer: track-and-field sprint training!" says Winslow, who first ran barefoot when cross-training with Brooks Johnson, a "Jesse Owens Olympic Hall of Fame" Track & Field Coach and a coach for USA Track & Field.

"The same strong lower bodies developed in speed training will benefit golfers in remarkable ways." Sprinting and speed, she explains, involve kinematic sequencing, conservation of angular momentum and maximum velocity: all things that are needed to create the torque required to deliver a powerful swing.

Pick up a club. Even if you're not a great golfer, taking golf lessons can prep you to communicate the nuances of proper golf form. Obtaining NASM's GFS can deepen your understanding, too.

"I love that the GFS meets at the intersection of traditional training and athletics," says Winslow. "It's a unique opportunity to better learn the language and real-world application of sport and performance."

To learn more about the Golf Fitness Specialization, go to nasm.org/gfs or call 800-460-6276.

PHOTO: CHRISTOPHER GRANT; INSET PHOTO: TODD A. ANDERSON, TODDANDERSON.COM

Avoiding Sexual Harassment in the Gym

Given the close relationships that fit pros develop with members and clients, it's particularly important to create a plan to prevent sexual harassment in the fitness workplace—and shut it down if it happens.

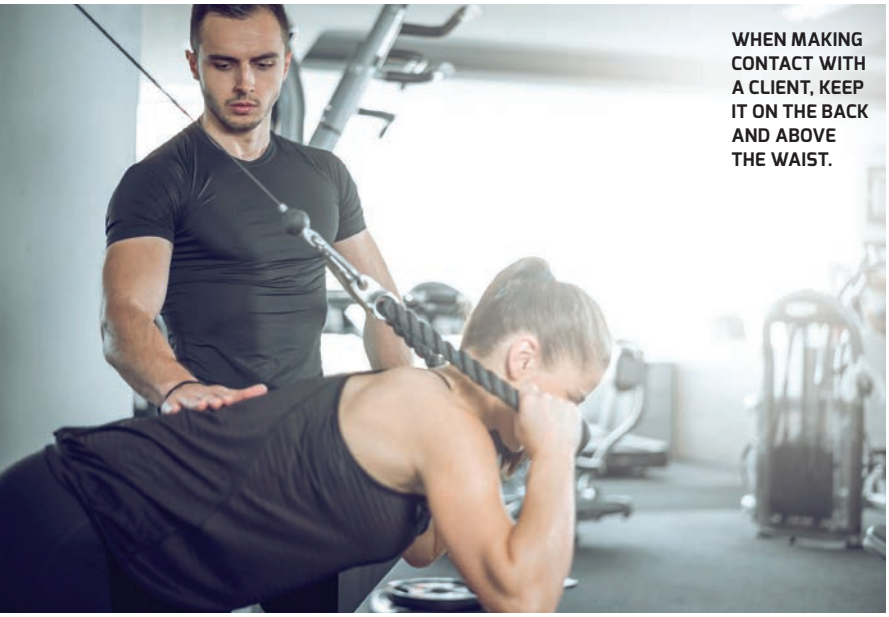
"Fitness professionals may find themselves in challenging positions that other employees don't face," says Josh Leve, founder and CEO of the Association of Fitness Studios (afsfitness.com). People spend hours working out in close proximity. Their attire is more revealing than "business casual." Clients may see fit pros as friends and confidants. It can be easy to let down your guard, but all it takes is one wrong look, social media post, text, joke or comment to ruin your reputation. Leve's advice:

Read up on harassment. The U.S. Equal Employment Opportunity Commission website (eeoc.gov) offers clarifying resources, as well as harassment-prevention training programs from the EEOC Training Institute. Discuss the topic in staff meetings, including whom employees should go to with concerns. Get the dialogue started with "See Something? Say Something!" (at right).

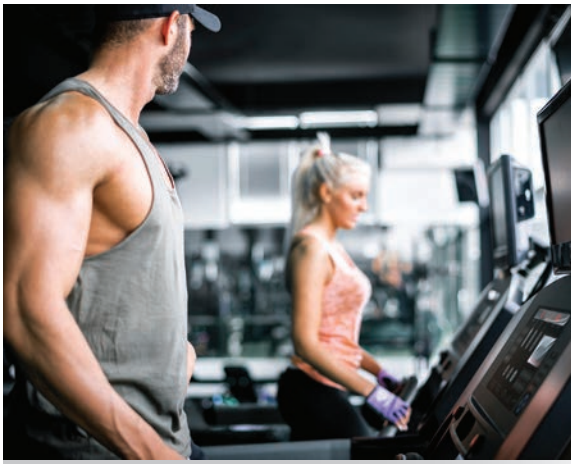
Spell out boundaries. Contracts should state that relationships between fit pros and clients will be professional and will focus on health and fitness goals. (AFS can help you find legal counsel.) When hiring, background and reference checks should be standard procedure, and employee handbooks should include an official complaint process.

Check your insurance plan. AFS works with the Sports and Fitness Insurance Corporation (sportsfitness.com), which recommends that all trainers and club facilities have general and personal liability insurance, including coverage for sexual abuse and molestation—yes, even if you'd never cross that line. Make sure the policy you are considering includes this coverage.

Leve admits that it can be challenging to stay at arm's length with clients whom you genuinely like, but it's up to you to draw and redraw that line as often as necessary. "At the end of the day, you want to give your client the best workout possible," he says. Stick to what's in your scope of practice as a fit pro, and you won't stray into the gray.



WHEN MAKING CONTACT WITH A CLIENT, KEEP IT ON THE BACK AND ABOVE THE WAIST.



LOOKING OR LEERING? IF YOU SEE SOMETHING THAT GIVES YOU PAUSE, ASK MANAGEMENT TO CHECK IT OUT.

See Something? Say Something!

Taking the steps in "Avoiding Sexual Harassment in the Gym" (at left) may require some time, but you can raise awareness right away. First, keep in mind that not all harassers are men, not all victims are women, and not all issues are with the opposite sex.

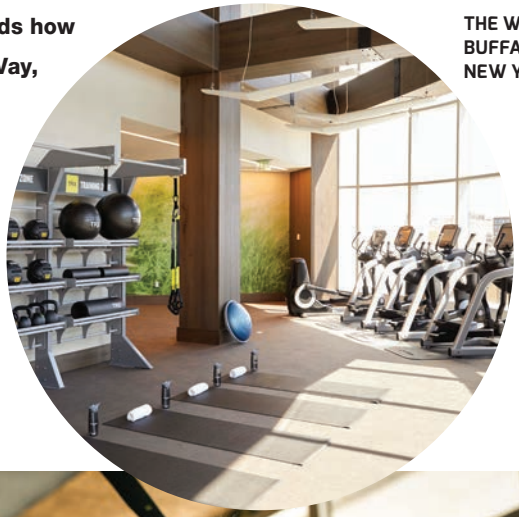
If a client crosses the line with you, address it immediately. Say, "I'm not comfortable with that," and redirect the conversation back to the workout.

If you see a member crossing the line, tell management right away, but keep it calm and confidential. That's easier to do if you catch it early. Your barometer: Trust your gut. If *you're* uncomfortable, or you think anyone else is (even if it's a bystander), do something. Perception can make or break your brand.

CHECK IN, WORK OUT

Anyone who travels regularly—or works with clients who do—understands how quickly fitness can take a back seat when you're on the road, says Nick Vay, TRX® director of North American sales. A shared commitment to making fitness "more accessible to all" led TRX to partner with Westin Hotels & Resorts in January 2018 to provide a 21st century solution. "We want to create world-class training areas so guests can continue to make fitness a priority, even when traveling," says Vay.

The initiative scales across more than 200 WestinWORKOUT® Fitness Studios worldwide, enabling travelers (clients and fit pros alike) to continue training without having to bring along their own equipment. For clients staying at a Westin, you can offer motivation and guidance remotely, building a workout around TRX's full line of equipment, including the TRX Suspension Trainer™, foam rollers, slam and medicine balls, kettlebells and battle ropes. When you're the Westin guest, try some of the hundreds of functional exercises accessible via the TRX app, which offers in-ear audio coaching and instructional videos. This year, your favorite vacay souvenir may be a fresh, new workout program. Learn more at westin.com/TRX.



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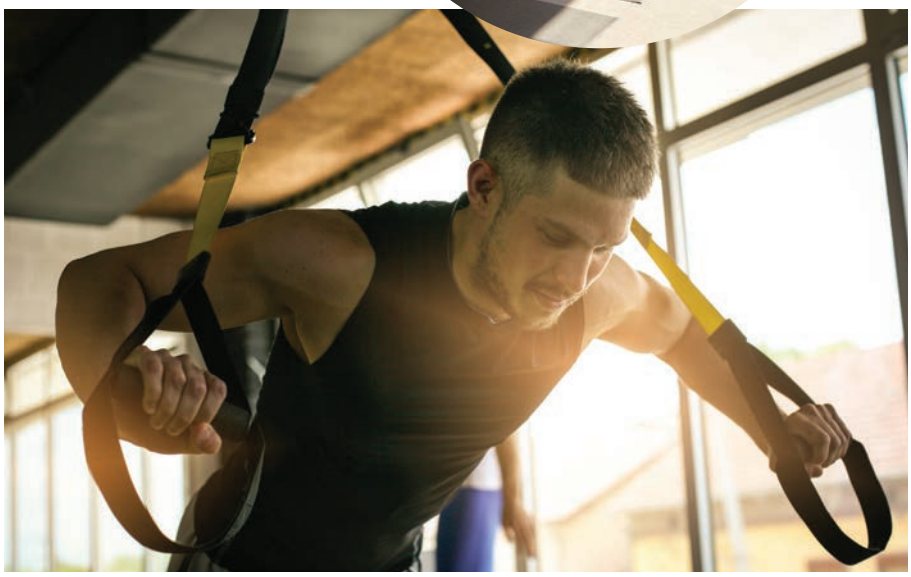


Indoor Cycling Shout-Outs Overheard in cycling class…

FIND THE SEAT SWEET SPOT:

"Look at your feet when pedaling. You should see your laces for about 50%–75% of one revolution. If you don't see them for that long, your seat's too far forward."

GET TO THE GLUTES:

"To avoid overfocusing on your quads, try to pedal without pushing down excessively: Use your foot to 'scoop' on the upswing, to drive the pedal around. Pretend you're trying to scrape gum off your shoe!"

For more tips on kicking up your cycling cues, see "Power in Motion," page 54.

The Best of Both Worlds

WHAT SOLO AND GROUP EX INSTRUCTORS CAN LEARN FROM EACH OTHER.

In a study published recently in *The Journal of the American Osteopathic Association* [2017; 117, e17–e25], Dayna M. Yorks, DO, investigated how group exercise affected quality of life for 69 first- and second-year medical students—a group well-known for their high levels of stress. Over a 12-week period, 25 participated in fitness classes, 29 worked out alone or with up to two partners, and a third group of 15 didn't exercise regularly.

While the class group exercised about 1 hour less per week than the "loners," it was the class participants who enjoyed a significant decrease in stress and increase in quality of life (physical, mental and emotional). However, the study authors noted, "These findings should not be interpreted as a condemnation of individual exercise." To be sure, Yorks appreciates both settings, as she is not only an AFAA Certified Personal Fitness Trainer but also a group ex instructor with ACE and Les Mills. Yorks suggests group ex instructors and personal trainers can learn from each other's strengths to build better relationships with their members or clients.

FOR PERSONAL TRAINERS . . .

Recognize the importance of the workout experience. Introduce clients to each other. Offer a small-group session once a week. Maybe even encourage clients to take a class. Yorks asserts that this can augment their training, while building the sense of community shown to lower stress and boost quality of life.

Lunge Lessons: It's Time to Lean In

This may come as a surprise to some clients: It's not a crime if the knee extends over the toes a bit during a lunge. "You don't want this to be excessive," notes Mike Fantigrassi, NASM-CPT and Master Instructor. "But as long as the form is good and weight is balanced—and the person doesn't have knee issues—this isn't a problem." Here are a few things he says are frequently off-kilter—and how to cue clients to get this move right.

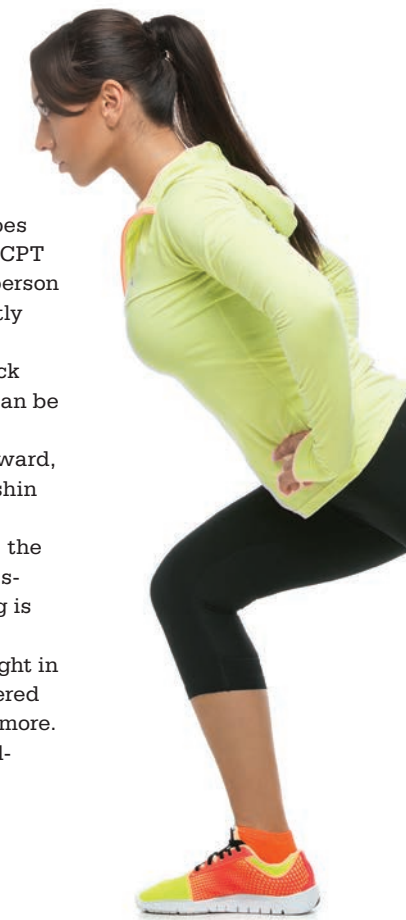
Suggest they start in reverse. Fantigrassi says it's often easier for people to step back into a lunge than to step forward. Stepping forward requires a more forceful drive, which can be destabilizing. If they're not up to the task, go back to squats to build strength.

Encourage them to lean in. If you were stepping onto a box, you'd naturally lean forward, loading the front leg. This is what you want to do in a lunge, too, to target the glutes. The shin angle should match the angle of the torso. (An upright torso would target quads instead.)

Don't forget the feet. If you see the rear heel lifting and the back leg won't stay bent, the step is too long. If the weight on the front foot is on the ball of the foot and the knee is excessively past the toes, the step is too short. The front leg should be positioned so the back leg is basically functioning as a kickstand. Clients should almost be able to lift that rear foot.

Weight it right. To progress the lunge by adding load, clients should start with a weight in each hand, which is less destabilizing than a bar across the shoulders. Once they've mastered both of these, they can try a sandbag or two on either shoulder to challenge stability even more.

Know when to drop the weights. Side and crossover lunges are variations that challenge stability, but it's not easy to do them safely while holding heavy weights.



FOR GROUP FITNESS INSTRUCTORS . . .

Yorks suggests reflecting on the important impact you have on individual lives. "To help people fall in love with fitness because it changes them emotionally is a gift," she says. It will also keep them coming back. To bring personalized attention to your classes, get to know members by name, and offer individual notes on how well they're doing in a particular area.

When all exercisers in the club feel valued as individuals and as part of a larger community, magic happens, says Yorks.

EXERCISERS BENEFIT FROM A STRONG SENSE OF COMMUNITY, AS WELL AS INDIVIDUALIZED ATTENTION.

PRE-LUNGE PROGRAMMING
"TO FOLLOW THE NASM OPTIMUM PERFORMANCE TRAINING™ MODEL, START CLIENTS WITH A SQUAT, THEN PROGRESS TO A STEP-UP, WHICH INCORPORATES THE MOVEMENT PATTERNS OF THE LUNGE," SAYS MIKE FANTIGRASSI, NASM-CPT AND MASTER INSTRUCTOR.

Fitness for All: Welcome *Everybody* to Your Club!

Fitness pros who work with people with disabilities have an opportunity to help people become more independent in their everyday lives, says Jared Ciner, NASM-CPT, founder and director of SPIRIT Club, 80% of whose members have a disability. The fitness success of these clients can affect their ability to walk or to feel comfortable in a social setting. Being inclusive, he adds, means more than complying with the Americans with Disabilities Act (ADA.gov) by adding ramps and parking spots. To truly be inclusive:

Start with the culture. "Use positive, person-first language that makes people feel supported and proud of their accomplishments," says Ciner. If you're unsure how to speak about someone's disability in a sensitive way, just ask the person.

Focus on functional fitness. Most people will have more motivation to complete an exercise if they can understand how it relates to their everyday life. And proper execution can become easier when an exercise is made functional. For example, getting up and down from a chair when practicing squats can improve form and appreciation for the exercise.

Clear up your cuing. Footwork can be confusing. Try placing nonslip colored circles on the floor as a visual aid. (Think of the game TWISTER.) You can see this strategy on spirit-club.com's homepage video.

Ciner would love to see more clubs actively seeking members from this underserved population. "If a gym is going to be reflective of society, which I think is the ideal situation, then about 20% of your membership should have a disability," he says. "Integrating people with disabilities into your programs will impact both your business and society in a positive way."

3 Reasons Why

NO ONE READS YOUR MESSAGES

SHE'S GOT PLACES TO GO, THINGS TO DO: HOW CAN YOU GET HER TO CLICK ON YOU?

As a rule, fit pros are fantastic face-to-face persuaders. Your personality *is* your brand. But if your go-to opener on a marketing email or other digital outreach is "Hi! I'm so-and-so with such-and-such club, and I'm an expert in blah-blah-blah," you're wasting your virtual breath.

Online, you get about 2 seconds—or 10 words—to make a first impression, says Erin Gargan, author of *Digital Persuasion: Sell Smarter in the Modern Marketplace* (Lioncrest Publishing 2017). Coincidentally, that's about how much of your message will appear in the preview or notification pane of the recipient. "We get 300 messages a day, so our brains are rewiring to survive inbox onslaught," she says. "Your whole goal is to maximize the 'power of the preview' and to stop that scroll." Here she shares 3 common flubs and their fixes:

Mistake 1 You talk about yourself. Don't use the word "I" at all; the readers don't know you! Lead with a proper noun (person, place or thing) of personal significance to your recipient: a city, a location, a friend's name, an event. "The goal is to get them to lean in," she says.

Mistake 2 You ask for something. Instead, offer them something useful—free. Share an article link or tip that might interest them. (Again, not about you!) "They'll think, 'I don't know this person, and they gave me something. It's mysterious,'" she says.

Mistake 3 You write a "book." Make your message "shockingly brief." Include the proper noun and helpful tip, as mentioned above, then sign off with your contact info (name, website, email, cell). That's it. Just wait for a response, advises Gargan, who says this approach works for her. In fact, about 95% of the time, readers will visit her website (eringargan.com), watch a video, buy her book or book a gig.

"Use digital to ignite dialogue," says Gargan. Pique the readers' curiosity, so they'll call you for an assessment, register for your demo or visit your event table. *That's* when you can show your readers "who you are." In person. Where you're most persuasive. (Tip: Don't dwell on your mistakes—in workouts or in digital outreach! For a quick recap of how to write better, check out Gargan's "recipe" at right.)

ERIN GARGAN'S 3-INGREDIENT RECIPE FOR DIGITAL OUTREACH

Now that you know what "compensations" you're making (see "Why No One Reads Your Messages" at left), use these cues to write better messages to potential clients and business partners.

1. **Lead with a proper noun that will pique their interest.**
2. **Offer something; ask for nothing.**
3. **Sign off with your contact info.**

EXAMPLES:

Free Expo Near You! Tip: Register with promo code FITNESS to get free parking. Cheers!

Your friend John says you're a mountain biker. Here's a blog on "best-kept-secret rides" in Laguna Beach. Cheers!

These approaches may seem counter-intuitive, but they've proved to be effective. "I have A/B tested over 1,000 outbound sales messages across multiple industries to uncover optimal techniques to improve cold-outreach response rates between 40% and 65%," says Gargan, "and these are the approaches that worked."

Innovation: A Breath of Fresh AIRE

"I want to make fitness accessible for everybody in every neighborhood."

When Mario Scade founded AIRE Fitness 3 years ago, his vision was to build a gym inside a shipping container, allowing easy access to professional indoor gym equipment in any outdoor setting. "Right now, we're building two units for YMCAs in Houston that were shut down due to flooding. We can turn their parking lots into a fitness center," he says.

In addition to providing fitness access to lower-income neighborhoods, AIRE Fitness has set up containers as an "instant" performance center for universities. (This can save them millions of dollars and allow them to bring the gym to the athletes right next to the practice field.) AIRE Fitness containers also supply outdoor enthusiasts with "indoor" cross-training options, but in the fresh air of a park or recreational center. There's even an AIRE Fitness studio on a rooftop in San Diego! And fitness pros can more easily open their own facility: "All they need to do is find a space where they can place the unit, and if things don't work out, they can just move it somewhere else," says Scade.

Each AIRE Fitness unit includes a music system, fitness equipment and security cameras, and soon there will be customized programming created by NASM faculty instructor Fabio Comana, MA, MS. "I want to make fitness accessible for everybody in every neighborhood," says Scade. Track his progress or join in the mission on airefitness.com.

LAURA QUAGLIO *gets her mental exercise interviewing experts on everything from agility training to heart rate zones. She's also a wife and mom, a second-degree black belt, and an award-winning costume designer. Her favorite physical workouts these days are indoor cycling and boot camp, especially the tire flips.*

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A TRAINING PLAN FOR GROUP FITNESS MANAGERS

Like improvements in athletic performance, career gains don't come from passion alone. Here are five expert strategies to fill your toolbox with what you need to move up in your fitness facility.

BY KATE REZABEK, MED

In any business, growth comes through experience. In group fitness, you become an instructor and teach for a few years, and before you know it, you're so passionate about inspiring others through exercise that all you can think about is making this part-time love your full-time gig. This has happened to many of us who have caught the teaching bug, and it's an exciting place to be when you're well prepared for the next steps.

I'm currently the director of group fitness at American Family Fitness in Richmond, Virginia, and it has been a few years since I took the "next steps" that propelled me from my first fitness love in 2004 (group cycling) to my full-time move into the business side of fitness in 2014. I brought with me a professional background in education, business strategy, employee training and client engagement, all of which prepared me well for that transition. Since then, I've spoken with many group fitness instructors eager to grow in the industry. Each time someone says, "I'd like to be a group fitness manager someday. What should I do to get there?" I share the same five pieces of advice to make sure that person is headed in the right direction.

The best group fitness managers aren't always the top instructors, but they certainly know how to recruit, develop, inspire and retain those who are. They're the ones who can lead the pack, support their teams, make strategic choices and engage positively in every situation.

Diversify Your Fitness Experience

If you teach an incredible step class, or you're known as the best boot camp instructor in your fitness facility, it's time to spread

your wings. Make sure you have experience in the three major areas of group fitness: traditional group exercise classes (cardio, strength, flexibility), mind-body (yoga, Pilates) and cycling, especially if your club offers classes in all of these categories. Don't forget to include aquatics if that's part of the programming as well.

Why such variety? If you're going to lead a diverse team, your instructors need to know you respect and value *all* components of group fitness.

> The best group fitness managers aren't always the top instructors, but they certainly know how to recruit, develop, inspire and retain those who are.

TRAIN IN AT LEAST ONE CLASS PER CATEGORY. Get to know the classes from a participant's point of view. Ride your way through a group cycling workshop. Strike a yoga pose. Show a little love to all the formats.

KNOW YOUR STRENGTHS. Pick up a barre specialization or Pilates certification if you're not ready to tackle your 200-hour yoga training. You don't have to teach every program on your facility's schedule, but do tap into a few specialties.

TRY A NEW APPROACH. If your club has freestyle and prechoreographed programs, teach at least one format in each style, so you can experience both types of coaching.

LEADERSHIP APPLICATION: An ability to lead by example in a variety of programs will help you when it's time to recruit, hire, train, coach and develop your team.

Obtain a Top-Tier Certification

Group fitness instructors, especially those who want to grow into leadership roles, should be picky about which certifications they pursue. A strong program will meet these criteria:

BE COMPREHENSIVE, covering contemporary breakdowns on anatomy, alignment, functional training, multiplanar movement, effective exercises, recovery, coaching, cuing, music selection and more. By the time you earn a primary group fitness certification, you'll have all the tools you need to lead a great freestyle class, plus you'll be even better at coaching and cuing because you'll know the *why* behind each movement pattern.

INCLUDE SPECIALTY WORKSHOPS AND ONLINE SUPPLEMENTAL COURSES on such topics as programming for seniors and prenatal participants, injury prevention, and training for athletes. These allow you to stay relevant in the field and current with your continuing education.

BE ACCREDITED by the National Commission for Certifying Agencies (NCCA), which brings an added layer of value to your credentials. The new AFAA Certified Group Fitness Instructor (AFAA-CGFI) program is one example.

LEADERSHIP APPLICATION: This knowledge will be even more powerful when you're growing and developing new instructors. Together, your team will be able to discuss why an exercise is or isn't recommended by industry experts, and the science will speak for itself.

Always Be Professional

Whether you're onstage delivering the best class introduction possible, or you're simply walking through the facility engaging with members, you should always bring your A-game. Think about how you carry yourself, the expression

A New Spin on Old Advice

Sometimes, the popular adages about career growth are inspiring. But on occasion, their opposites ring true as well. Here are two examples.

PUT OFF UNTIL TOMORROW WHAT YOU CAN DO TODAY.
You don't have to make a career leap right away. Make sure you've prepared yourself for the opportunities ahead by filling your toolbox with as much experience as you can right now. Then take the next step when you're ready.

"Prior to being a group fitness manager, I was a nurse working as part of a fast-paced team at a hospital. In that role, I learned when to lead and when to follow, how to work effectively with others, how to think quickly on my feet, and ultimately how to be a great listener. These skills translated perfectly when I changed careers, as listening to my patients was much like listening to the instructors and members we support in group fitness.

"Now, as a business leader in our clubs, my goal is to ensure I set everyone up for the best possible experience by listening to their needs and putting their interests first, while still driving the bottom line for the organization."

–Carter Collins, director of group fitness at O2 Fitness Clubs in North Carolina

IT'S NOT JUST WHO YOU KNOW; IT'S WHAT YOU KNOW.
Yes, it helps to have friends in high places, but nothing replaces quality training and a solid knowledge base. Don't sell yourself short or settle for anything less than the best when it comes to choosing an education path.

"My Primary Group Fitness Certification through AFAA set me up with the best possible foundation for teaching a variety of group fitness programs. With AFAA, I have a solid base of knowledge to effectively cue and explain the benefits of each specific movement we do, so our participants always get the most out of their workouts."

–Diane Jenkins, AFAA Certified, American Family Fitness

BECOME AN AFAA PREFERRED CLUB PARTNER
If your facility currently supports and employs AFAA-certified professionals, or is looking to do so, the AFAA Preferred Club Partnership program will help attract, develop and retain quality instructors. Find out more at www.afaa.com/preferred-club-partner.

AFAA
ATHLETICS & FITNESS ASSOCIATION OF AMERICA

on your face, the language you use and even what you're wearing.

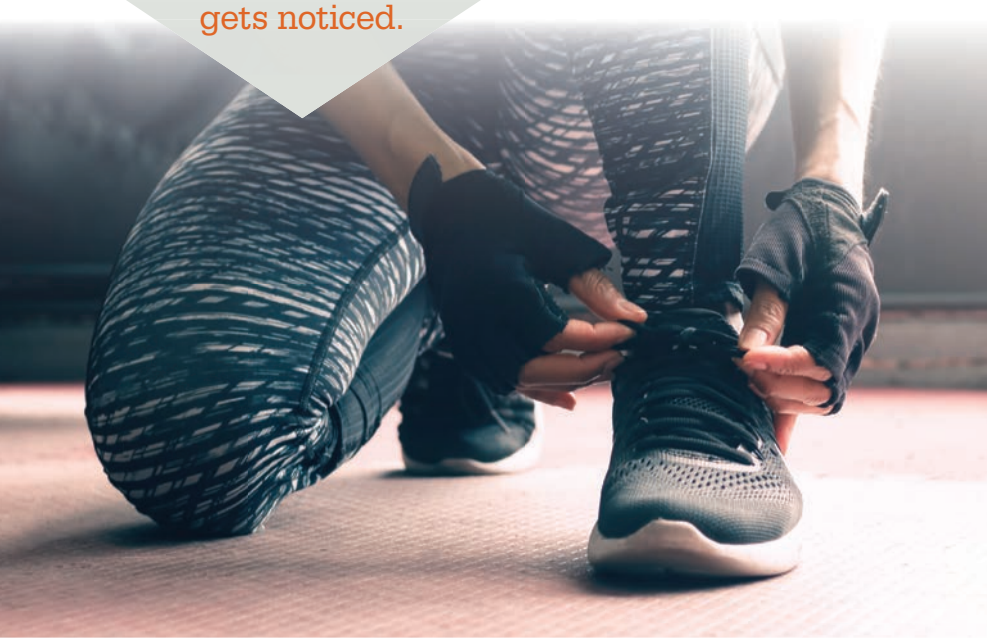
LEAD BY EXAMPLE. Be more than just a great instructor. Picking up a stray paper towel or recycling the empty water bottle left on the studio floor will be recognized.

ROLE-MODEL BEST PRACTICES FOR SAFETY AND WELL-BEING. Believe it or not, even sporting appropriate footwear gets noticed. By choosing athletic shoes that are professionally sized and well-suited to the program you teach, you can avoid injury, set an example for participants and show your managers that you have a deeper understanding of your work.

SHOW THAT YOU'RE RESPONSIBLE AND YOU MEAN BUSINESS. Be the person you're proud of, and be someone the management team can't live without. Engage respectfully with members, and don't fuel drama—*ever.*

REMEMBER THAT SOMEONE IS ALWAYS WATCHING, IN PERSON AND ONLINE. Consider your social media presence and how it defines your personal brand. If you ever have the slightest inkling that something you're about to say, do, like or post could come back to haunt you, take a beat and think again. What you share online can absolutely impact your professional reputation and opportunities.

Role-model best practices for safety and well-being. Believe it or not, even sporting appropriate footwear gets noticed.



LEADERSHIP APPLICATION: Leadership requires some self-reflection and proactive development, so the earlier you start working on it, the better. Stay positive and productive, and you'll never regret doing the right thing.

Gain Outside Experience

Make the most of any position you're in today to set yourself up for big wins tomorrow. Particularly in group fitness, many of us enter this business on nights and weekends because it's our "fun job," not our "real job," and that's where the incredible journey begins. Sound familiar? Well, before you dive in headfirst and quit your day job, prepare yourself as fully as possible:

SOAK UP ALL THE MANAGEMENT TRAINING YOU CAN FIND. Learn from mentors in your business or organization, read voraciously, go to conferences and build your professional resumé.

GROW YOUR TRANSFERABLE SKILLS. You can develop these skills through hiring, giving feedback and making strategic decisions with a team. Spend some time working on these skills and then bring them with you to the fitness facility.

MANAGE OR LEAD A SMALL TEAM. Overseeing direct reports can be one of the most underestimated and time-consuming aspects of the job. Accept any opportunity to mentor or manage others—before making the leap at your club.

LEARN HOW TO MULTITASK. Practice in a fast-paced environment with oodles of distractions, because that's exactly how this position will roll! If you're a proactive go-getter who can prioritize, change on a dime and be a great listener (borderline therapist), you'll go far as a group fitness manager.

LEADERSHIP APPLICATION: The more leadership experience you have under your belt, the more successful you'll be at guiding your team and driving the business side of group fitness.

Be Positive, Coachable and Collaborative

The combination of loving what you do and having fun at work is beyond rewarding, so if you want to make the job a success, bring a positive attitude, be coachable and be a team player.

BE A POSITIVE CONTRIBUTOR. Look for what can be done in each situation, and be helpful, but don't say yes to everything or you'll get overwhelmed fast.

FIND A MENTOR. Engage with someone whom you trust to give you great advice. We all love to share our stories, and the best mentors will help you learn from their successes *and* their mistakes.

ASK FOR FEEDBACK. When you do ask, embrace the response, act on it, grow from it and show your potential as a team player.

LEADERSHIP APPLICATION: If you take the approach of always being willing to learn, grow and be better than you were yesterday, you'll go far, and your team will want to come with you.

Ready to Quit Your Day Job?

When you have an open mind and a positive attitude, you'll succeed in any industry. Group fitness will be a great place for you to excel, because you'll be able to use what you learn to lead your team of eager and engaged instructors by example. The love you all share for fitness will be abundantly clear, and ultimately it will increase member retention, drive measurable facility and department growth, and ensure that you have fun while you're at it.

KATE REZABEK, MED, *holds a master's degree in educational leadership and is certified in 16 group exercise formats. Follow her on Twitter and Instagram (@KateRezabek) and read her blog (katerezabek.com).*

HALF IS MORE: THE 30-MINUTE MODEL

How and why dropping the 60-minute session to 30 radically improved my training business.

BY MICHAEL PIERCY, MS

It all started years ago when a longtime client of mine loved to tell anyone within earshot how much she hated to work out. So I tried an experiment and chopped her workout in two. Soon, the same woman who could barely stand a weekly 60-minute workout could not get enough of two half-sessions a week. Her enjoyment and adherence spiked, results improved exponentially, and the negative views on fitness evaporated.

I used to have a lot of clients like her. Their once-a-week, 60-minute sessions weren't delivering the results they signed up for—mainly because that one workout was the only exercise they were getting all week. Other clients would cancel over busy schedules or tight budgets.

I started thinking that there had to be a way to make the programs much more fun while keeping the clients more engaged. How could I get them to come to the gym more often and maintain focus during their sessions?

I found my answer in one succinct sentiment:

"I can do anything for 30 minutes."

Before long, I converted all my weekly 60-minute clients into 30-minutes-twice clients—triggering a 60% increase in training revenues for my business.

And that's how my 30-minute model was born. It's an excellent fit for clients who are busy, cash-strapped or both. Plus, it's easy to do as long as you understand why it works so well and know some of the nuts and bolts of getting it up and running.

Why Clients Need the 30-Minute Model

A primo client walks in one day and drops the bomb: "I'm sorry, Super

Trainer. I really enjoy the workouts and the facility, but I need to take a break. I'm really short on time and can't fit in our usual workouts."

Don't you hate that? Your business is finally going in the right direction, and then bang—a great client wants out. My 30-minute model works because I designed it to turn this kind of scenario around.

The shorter time frame lends itself to more fun, focused and themed programming.

Think about it from your client's perspective. In our time-strapped society, any number of stressors can cause a training hiatus:

WORK. More and more clients work from home, leading to a relentless, activity-driven lifestyle. They are working on projects with the stress of deadlines and obligations 24 hours a day!

TECH. The social media boom produces a constant influx of notifications and a crush of pressure to keep up with the posts and tweets of friends, family and co-workers.

PERCEPTION. To the average sedentary fitness participant, becoming fit feels like climbing a mountain. With all the other pressures from work, social media and more, it's far too easy to push an exercise routine to the bottom of the priority list.

Top Benefits of the 30-Minute Model

"How do you eat an elephant?"

"Take small bites."

Kidding aside, there's no doubt that the typical 60-minute gym session has become increasingly intricate as trainers/coaches develop their training philosophies. Whether you're adding self-myofascial release/foam rolling, dynamic warmups, activation techniques or corrective exercises, sessions are getting a lot more complicated—and perhaps squeezing in more than clients want to take on in one workout.

Frequently Asked Questions About the 30-Minute Model

Here are some common questions I am asked about the 30-minute model:

HOW DO YOU DECIDE WHICH ACTIVITIES A CLIENT NEEDS, AND THEN HOW DO YOU RECOMMEND THEM?

Answer: The 30-minute model works best when focused on frequency and creativity. A one-on-one, quality assessment will guide programming, just as it would in a 60-minute model.

DO YOU GIVE CLIENTS "HOMEWORK" FOR DAYS YOU DON'T MEET WITH THEM? WHAT ARE SOME EXAMPLES?

Answer: The model naturally lends itself to high-intensity interval training, which utilizes multijoint movements. If clients work hard enough, they'll need the time away from you for recovery. However, encourage them to do any additional activity they find enjoyable. If my clients have specific performance goals or needs, I offer a supplemental programming option; you could do the same.

DO YOU PERIODIZE SESSIONS OR PERHAPS FOCUS ONE ON UPPER BODY AND THE NEXT ON LOWER? OR IS IT ALWAYS TOTAL-BODY?

Answer: Let your assessments guide programming, and offer different models based on clients' individual needs. You may find it easier to group people into different modules, and there may be times when you need to be more creative. This is one reason why continuing education is so important for you, the fitness coach.

What you see as crucial, a time-crunched client may view as tedious or impractical because of scheduling concerns. The 30-minute model alleviates these concerns.

Here's why it works so well for this:

IT'S TIME-EFFICIENT. The model uses the bare essentials needed to help the client move toward measurable results within the time frame. It condenses the dynamic warmup, pares down intricate programming and creates a more fun, focused experience.

A 30-minute approach produces multiple visits with a coach, providing the consistency it takes to ensure lasting results.

IT'S VALUE-BASED. Cost concerns are all too realistic. Clients can see long-term personal training as an expensive proposition, perhaps even a luxury. Trimming the time to 30 minutes can make training seem more affordable and reduce barriers to entry.

IT OFFERS VARIETY. The shorter time frame lends itself to more fun, focused and themed programming. For example, we have "red-zone workouts" for football fans, with special 30-minute classes tied to weekly NFL season events. In a small-group setting, clients enjoy the camaraderie, intensity and energy in a fun, athletically inspired session. Individual sessions are also intense but fun.

The Pricing Power of 30-Minute Sessions

The typical 60-minute personal training session costs from $60 to $150, climbing to a super-premium $200-plus in hotbeds such as New York City and Hollywood. Those costs can be a high hurdle for people with middle-of-the-road salaries.

A 30-minute model lets you add depth and variety to your service offerings while providing a much more attractive rate to those on a tight budget. A 30-minute session could cost $20–$60, depending on the market.

The lower cost and higher flexibility can produce a more robust experience for clients who might be able to afford no more than one 60-minute session a week. Furthermore, a 30-minute ap-

proach produces multiple visits with a coach, providing the consistency it takes to ensure lasting results.

SMALL-GROUP POTENTIAL

Offering 30-minute sessions can boost your small-group training programs with a lower-cost option that provides a results-driven environment perfect for functional training. Programs such as MX4 from Matrix Fitness are based on turnkey 30-minute programming that can infuse a boutique studio atmosphere into bigger clubs. The small-group option gives clients a chance to participate in top-notch training programs at a fraction of the cost of one-on-one training.

How to Implement the 30-Minute Model

Succeeding with the 30-minute model does not require a drastic change. Here are a few tips for painlessly integrating 30-minute sessions into your fitness business:

USE AS A FEEDER PROGRAM. Giving a free 60-minute session to new clients is a fitness industry staple. Do the same with a 30-minute intro session or package to allow new members to try your services.

ADD ALTERNATIVE TRAINING OPTIONS. Offer 30-minute sessions in addition to your current 60-minute sessions. Many sedentary newcomers find 60 minutes intimidating, whereas half that time feels much less stressful and more affordable. If some seasoned clients still prefer longer workouts, continue to offer these, as well.

ADD GROUP OPTIONS. The standard fitness class runs 45–60 minutes. Offering a shorter, 30-minute class can also be attractive for prospects with schedule challenges and will go a long way toward alleviating concerns about getting a good workout in a short period of time.

Also consider the corporate space, where busy executives often exercise on lunch breaks—sacrificing a meal to squeeze in a workout. Our 30-minute lunch classes are among the most engaging ones we lead. (And the shorter time frame still gives most participants time to grab lunch after class.)

Why They Will Love It

The 30-minute model can be a game changer for businesses seeking new ways to spice up their programming while addressing the challenges of busy professionals. It can also add variety and fun to workouts that members and clients might find stale and tedious.

Shorter, more time-efficient workouts have made a strong, lasting impact on my business and many other successful fitness studios across the country. If you want to turn up the heat in your business, try turning up the fun and turning down the clock.

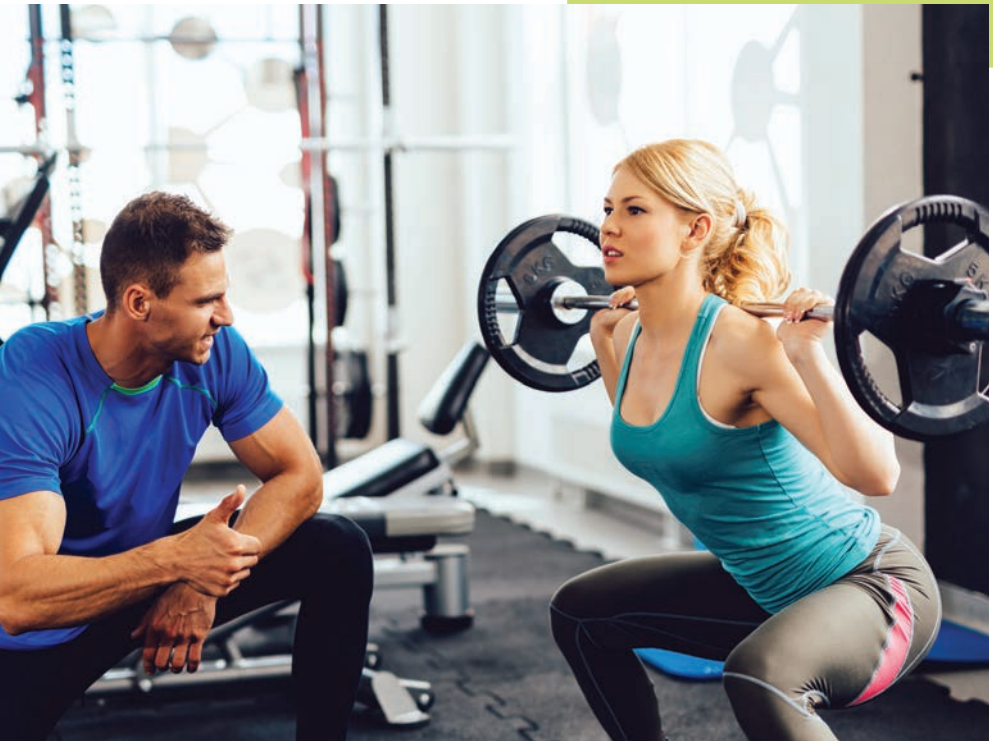
Sample Workout

The following is a sample 30-minute workout I do with my clients. Do exercises 1a, 1b and 1c as a circuit, one after the other, resting as little as needed for one round. Complete three more rounds (four total), and then rest 60–90 seconds. Repeat for the second and third circuits.

Start with a short, dynamic warmup (approximately 2–4 minutes):

- jumping jacks
- high-knees
- butt kicks
- seal jacks
- inchworms

CIRCUIT 1	
1a. body-weight squat	3 x 10–15
1b. pushup	3 x 10
1c. jumping jack	3 x 15–20
CIRCUIT 2	
2a. glute bridge	3 x 10
2b. pullup	3x to failure
2c. squat jump	3 x 10–12
CIRCUIT 3	
3a. bear crawl	3 x 10–15 feet
3b. crab walk	3 x 10 feet
3c. V-up	3 x 10



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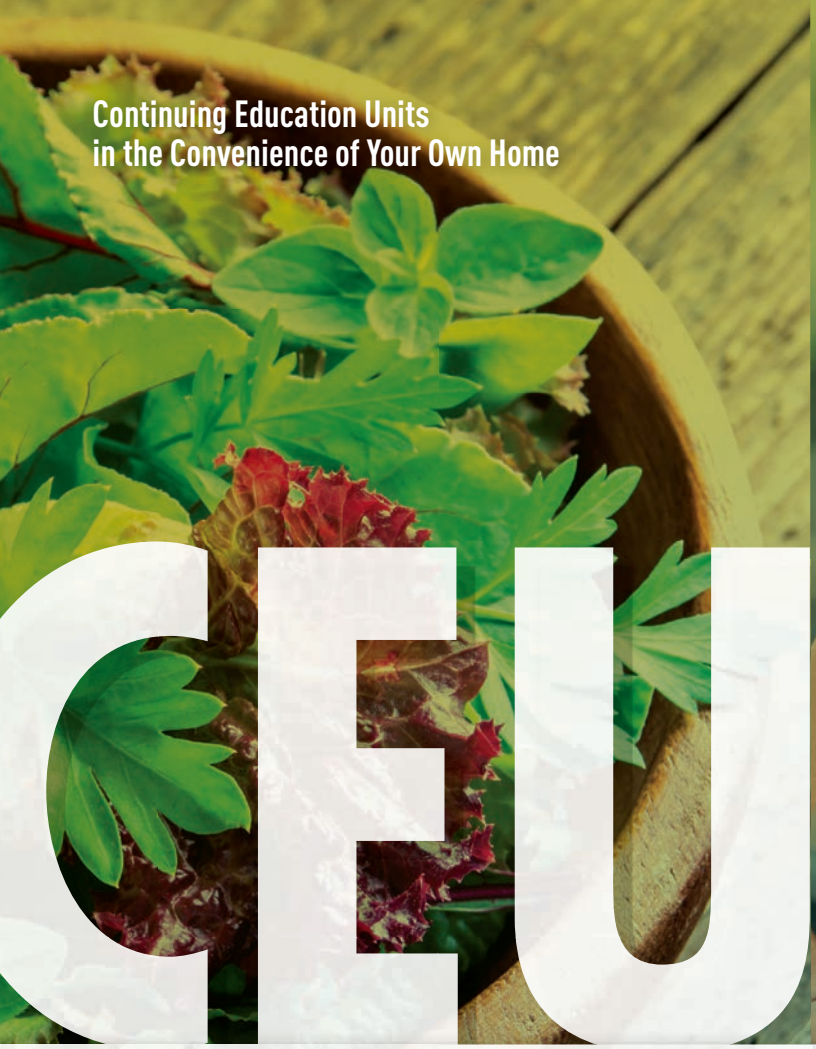

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THIS ISSUE'S CEU CORNER AND QUIZ FEATURE IS:

READY TO ROLL:

What Science Says About Self-Myofascial Release

BY PJ O'CLAIR

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BY PJ O'CLAIR

What Science Says About Self-Myofascial Release

Research on foam rollers and other self-massage devices has produced some hard evidence to support their use—and revealed some surprising benefits to the body.

Tennis balls loosen tight tissue. Foam rollers expand joint range of motion. Massage sticks soothe recovery from high-intensity workouts.

It's called **self-myofascial release** (SMR), and it has found legions of fans among fitness professionals since the early 2000s. Still, serious fitness pros who resist latching onto the latest fads have legitimate questions about SMR:

- What is self-myofascial release?
- Does science back up the efficacy of SMR?
- How do we make sure our clients use scientifically sound SMR techniques?
- Which SMR tools are best suited to specific fitness goals?

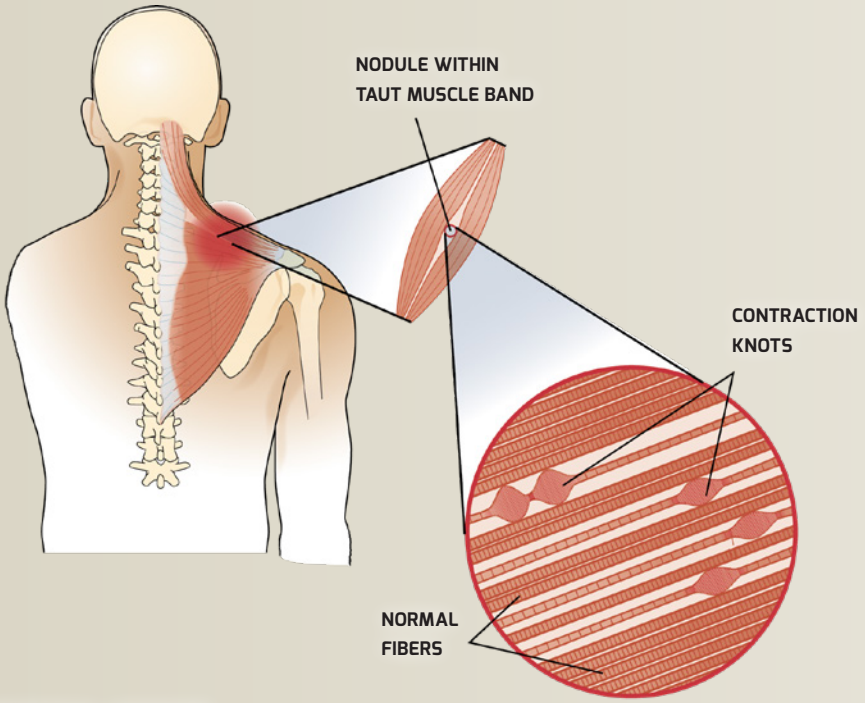
This article reviews the latest research on SMR to answer these questions.

Defining Self-Myofascial Release

The key to understanding SMR is knowing what came before it.

The term traces back to the practice of **myofascial release** (MR), a clinician-administered therapy named by osteopath Robert Ward in the 1960s and popularized by physical therapist John Barnes in the 1980s. Barnes described MR as a safe, effective way to apply gentle, sustained pressure to connective tissues to eliminate pain and restore motion.

MR is still practiced by osteopaths, physical therapists, chiropractors and licensed massage therapists (Barnes 2012; Tappen & Benjamin 2000).



MYOFASCIAL ADHESIONS

USING SMR ON OVERACTIVE MYOFASCIAL TISSUES RELEASES ADHESIONS, MAKING MUSCLES MORE PLIABLE AND INCREASING JOINT ROM.

The key for today's fitness pros lies in the prefix "self": Fit pros are helping clients use specific tools to enjoy some of the benefit of MR even if they don't have access to a professional therapist. In other words, SMR is MR performed *by* oneself *on* oneself.

The Science of SMR

Before the early 2000s, there wasn't much scientific data on SMR. The rationale for foam rollers, lacrosse balls and massage sticks arose from the benefits of manual therapies such as ischemic pressure to release trigger points (Hanten et al. 2000). But as SMR's popularity grew, scientists grew more curious about its effects. To date, dozens of studies have delved into SMR and self-massage tools.

FLEXIBILITY AND RANGE OF MOTION (ROM)

Most studies have focused heavily on SMR's ability to enhance flexibility and increase range of motion. That makes sense, given that flexibility is so critical to performance and functional daily living. Several factors contribute to flexibility, including joint integrity, muscle length, age and activity level. Tight muscles create postural imbalances, restrict functional movement and impede coordination. Decreased muscular tension—coupled with increased joint ROM—has been linked to performance improvements, especially in athletes who require full range of movement.

Using SMR on overactive myofascial tissues releases adhesions (see above), making muscles more pliable and increasing joint ROM (Roylance et al. 2013; Macdonald et al. 2014; Healey et al. 2014).

The release in muscle tension is believed to occur when the Golgi tendon organs (GTOs) are activated, imparting an inhibitory reflex (autogenic inhibition) (NASM 2018). *Note:* Studies typically use firm, dense foam rollers and apply significant pressure to stimulate the GTOs and ease muscular tension. If you want the same results, you must employ the appropriate tool. Using a dense tool (firm foam roller, ball or massage stick) with significant pressure is recommended prior to a workout.

DELAYED-ONSET MUSCLE SORENESS (DOMS)

Vigorous exercise often causes microscopic muscle tears that produce pain or discomfort 1–3 days later, best known as DOMS.

Three studies—two with a foam roller and one with a rolling massager—suggest that SMR reduces DOMS in both trained and untrained individuals (MacDonald et al. 2014; Pearcey et al. 2015; Jay et al. 2014).

One review (Beardsley & Skarabot 2015) indicates that fascia may play a pivotal role in the experience of DOMS. Findings revealed that the fascia covering overexercised muscles became more sensitive to painful stimulation than the muscle itself.

In effect, it is fascia, not muscle, that senses pain. Perhaps DOMS should really stand for delayed-onset *myofascial* soreness!

SMR's ability to reduce the effects of DOMS appeals to athletes, trainers and coaches alike. And the considerable success in pain reduction with untrained subjects makes SMR an attractive protocol for weekend warriors who overdo it from time to time. Furthermore, SMR tools are widely accessible, providing an inexpensive option for recovery.

Note: When DOMS produces extreme pain, a less aggressive tool—such as a softer roller or ball—may be more tolerable. Using an air-filled ball (also known as a "sponge ball") can help to manage pressure applied to affected body parts.

AUTONOMIC NERVOUS SYSTEM ACTIVITY AND RECOVERY

Studies note that SMR can influence the ability of the **autonomic nervous system** to enhance recovery. The ANS controls involuntary bodily functions such as breathing, circulation and digestion. It has two main divisions:

- The **parasympathetic nervous system (PNS)** controls homeostasis and the body's response while at rest. PNS lowers heart rate, relaxes muscles and helps restore a state of calm. Thus, it's necessary for recovery.
- The **sympathetic nervous system (SNS)** mobilizes the body's fight-or-flight response and adjusts physiological responses to threats.

Beardsley & Skarabot's review (2015) found that SMR may modulate ANS activity to assist with recovery. Another study measured serum cortisol levels in

healthy young women who completed a 30-minute walk on a treadmill wearing high heels—immediately followed by either passive rest or a bout of SMR using a foam roller. Although differences between the conditions were not statistically significant, there was a trend toward lower blood cortisol levels after the SMR, which study authors attributed to increased parasympathetic activation (Kim et al. 2014).

Similar effects have been found after massage therapy: heightened PNS activity, reduced heart rate and blood pressure, and increasing heart rate variability and endorphin levels (Weerapong, Hume & Kolt 2005). In another case, SMR using a baseball on the neck and upper back for 2 weeks increased PNS activity and

A Deeper Dive Into SMR

A quick overview of fascia and myofascia makes it easier to understand the fundamentals of SMR.

FASCIA

"Fascia is the soft tissue component of the connective tissue system that permeates the human body, forming a whole-body continuous three-dimensional matrix of structural support. It interpenetrates and surrounds all organs, muscles, bones and nerve fibers, creating a unique environment for body systems functioning" (Adstrum et al. 2017).

Fascia may play a role in force transmission (Huijung 2012). Because it is richly innervated with sensory nerve endings, it may also have a proprioceptive function (Schleip & Müller 2013). Anatomist and rehabilitation professor Andry Vleeming calls fascia the body's "soft skeleton."

MYOFASCIA

"Myofascia" suggests the bundled, inseparable nature of muscle (myo-) and its web of connective tissue (fascia) (Myers 2009).

Myofascia is a strong, flexible, fibrous layer of connective tissue around and within all muscles. Myofascial tissues consist of collagen and elastin fibers arranged in a weblike structure and suspended in a fluid called **ground substance,** a viscous gel consisting mainly of large carbohydrate molecules (Watkins & Mathieson 2009). Fascia supports all muscles while also allowing flexibility.

Myofascial restrictions result from injuries, chronic repetitive stress, poor posture, breathing disorders and trauma. Adhesions, which form between myofascial continuities, or "muscular slings," can be caused by dehydration (Stull 2017). These adhesions are believed to restrict movement and alter dynamic stability (Willard 2012). Myofascial release can improve the architecture of soft-tissue structures by "melting away" adhesions and hydrating the tissue, thereby decreasing associated pain and enhancing function.

Several factors contribute to flexibility, including joint integrity, muscle length, age and activity level.

decreased SNS activity (Chan et al. 2015).

To trigger the PNS response, fitness professionals may want to program SMR sessions with longer, more sustained pressure, rolling on one area for at least 90 seconds of sustained tolerable pressure (Barnes 2012). Gentle SMR techniques are most favorable for inducing PNS activity. Including breathing techniques in SMR practice is another powerful way to foster PNS activity.

NONLOCAL AND CROSSOVER EFFECTS

Findings from 2015 and 2016 show evidence of nonlocal and crossover effects from SMR.

One study compared the effectiveness of MR therapy and SMR techniques in releasing tight, short hamstring muscles by inhibiting the suboccipital muscles. The MR group received clinician-applied manual therapy of the neck muscles, while the SMR group did a self-release technique using a dense pillow and slight rotation of the head to apply pressure to the occipital region (Cho, Kim & Park 2015).

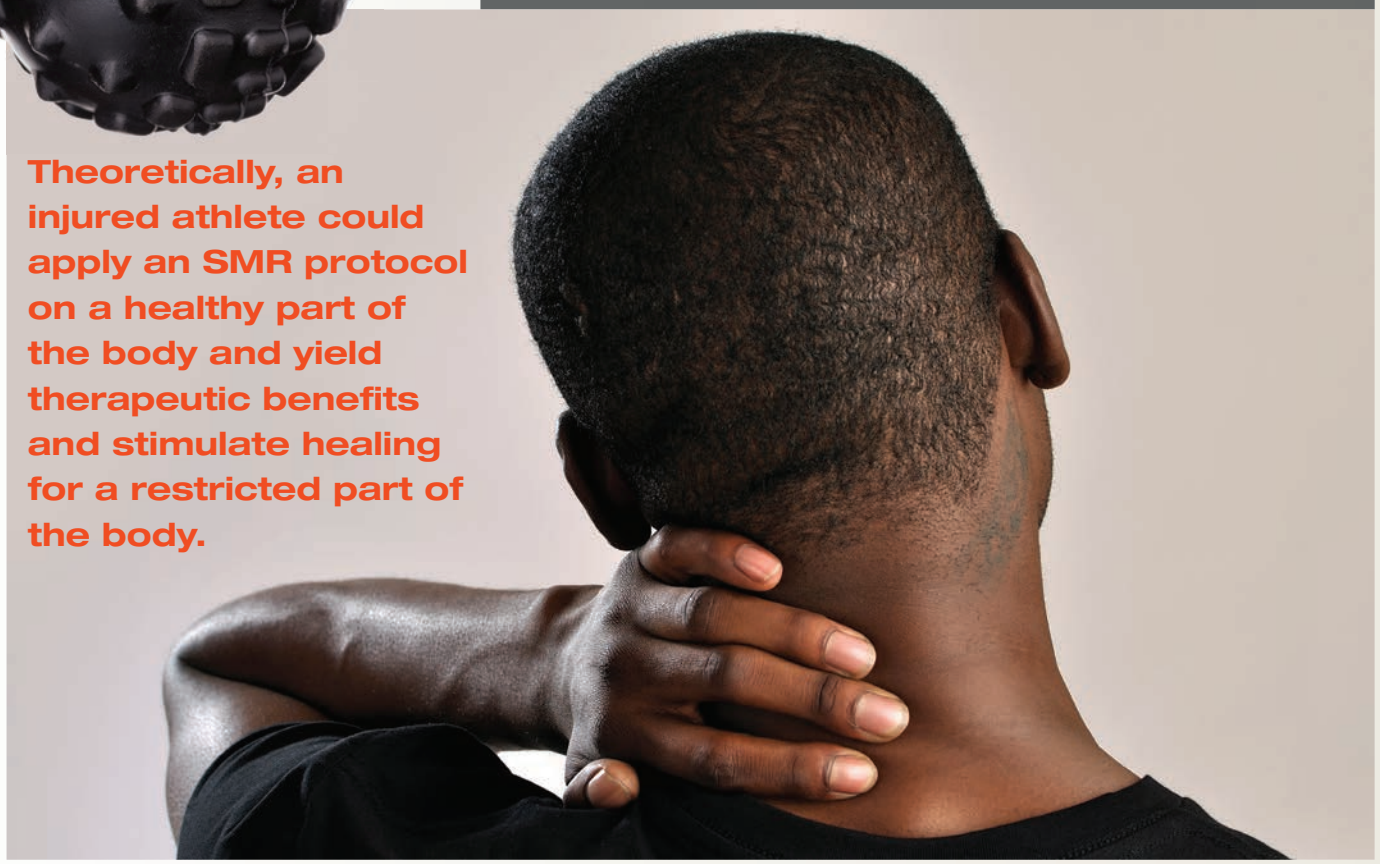
Hamstring measurements were taken before and after the exercises. Both groups showed positive results, though MR gains were higher than those of the SMR group. The authors suggest that releasing tightness in the suboccipital muscles may increase hamstring flexibility because the hamstrings are related to the suboccipitals via a myofascial sling identified as "the superficial back line" (Myers 2009).

Another study from 2016 (Kelly & Beardsley 2016) measured the effects of foam rolling on ankle dorsiflexion ROM. Volunteers performed three bouts of SMR with a hard roller on the calf of one leg for 30 seconds, applying as much force as tolerable. Results showed an increase in ankle dorsiflexion in both the

How to Choose SMR Tools

Consider these questions when choosing a tool:

- What are the goals: increased flexibility, pain reduction, recovery?
- Who will use it: healthy, fit clients or those with special needs or conditions?
- How high is the user's tolerance for pain or discomfort?
- How easy is it to use the tool? Does it need to be charged? Is it ground-based, or can it be used when seated? How much strength does it take? Is any particular skill required?



Theoretically, an injured athlete could apply an SMR protocol on a healthy part of the body and yield therapeutic benefits and stimulate healing for a restricted part of the body.

treated and untreated ankles, suggesting a crossover effect. After the exercise, the ROM improvement lasted 20 minutes on the treated side and 10 minutes on the untreated side.

The results suggest that mechanical and neurophysical mechanisms were at play. The mechanical benefits may have derived in part from applied pressure, as seen in previous studies. At the neurophysical level, it was hypothesized that mechanical pressure from SMR signaled a relaxation response via the nervous system, in much the same way as static stretching does.

The presence of crossover effects from SMR is promising for the rehab and postrehab fields. Theoretically, an injured athlete could apply an SMR protocol on a healthy part of the body and yield therapeutic benefits and stimulate healing for a restricted or injured part of the body.

These nonlocal crossover effects point out that nothing in the body happens in isolation. The body has a unique multidirectional myofascial architecture linking and relating one body part to another. These links are referred to as "muscle chains" by Leopold Busquet and "muscle slings" by Kurt Tittel (Richter 2015).

SMR Methods and Tools

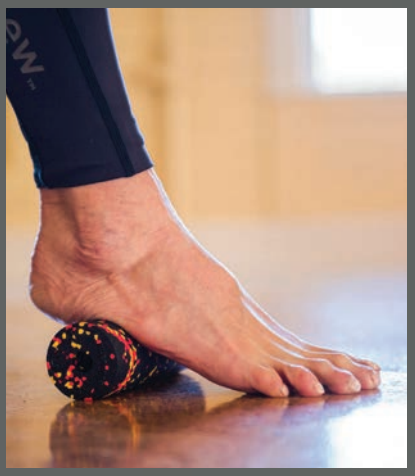
As self-massage became a profitable industry, hundreds of SMR devices emerged. Foam rollers are the most popular: They come in a vast array of sizes and shapes; they can be dense, soft, textured, contoured, or designed for percussive properties. Balls also come in all sizes and shapes—some smooth, some rough, some with knobs or spikes. Many handheld devices have different surfaces and vibrational capabilities. See "How to Choose SMR Tools," page 28, for more information.

Study findings on SMR are less conclusive than those on traditional MR, creating confusion about how and when to apply SMR. Fitness professionals use several types of rollers, balls and sticks, but knowing which to use and when can be a challenge. Here's a look at studies on specific kinds of devices:

A Sample Routine: The Thoracolumbar Fascia

Many of your clients experience lower-back pain, and the thoracolumbar fascia is a good area to target. This dense fascial sheath is known as a hot spot for lumbopelvic pain and dysfunction. The following short SMR program

- hydrates the tissue;
- alters the tissue density, creating more pliability between myofascial layers; and
- enhances proprioception.



Start with the foot. Place mini roller under foot and roll slowly from top to bottom for at least 90 seconds. Roll back and forth slowly on tender spots, applying tolerable pressure.

Why? Rolling out the plantar surface of the foot may release tension all the way up and down the posterior chain of the body, including the lumbopelvic region and the thoracolumbar fascia via the superficial back line (Myers 2009). Contraindication: pregnancy.

Target the trouble spot. From a supine position, place foam roller (contoured is preferable) at the junction between the middle and lower spine and slowly roll. Lean from side to side to target various angles.

Why? Rolling out the myofascial tissues has been shown to alter the density of the tissue, decreasing stiffness, enhancing pliability and alleviating pain (Gordon et al. 2016). Do not roll on the spinous process in cases of osteopenia, osteoporosis, severe scoliosis or pain.

Approach at an angle. Lie sideways, pelvis on roller. A ball supports the torso. Roll up and down the area of the gluteus and upper thigh. Slowly add rotation to apply pressure in various angles.

Why? The ball helps offload body weight and allows for trunk rotation, enabling the roller to enter on an angle, which has been shown to be more beneficial in differentiating the myofascial layers (Gordon et al. 2017). Stop if severe pain is present.

PHOTOS BY TERRI UNGER PHOTOGRAPHY

DENSE FOAM ROLLERS

One study used foam rollers to investigate the short-term impact of SMR on mobility of the thoracolumbar fascia (see "A Sample Routine: The Thoracolumbar Fascia," page 29, for more). Researchers divided volunteers into two groups, both of which used dense foam rollers on the same body parts (Griefahn et al. 2016).

The experimental group received the instruction to apply as much pressure as tolerable, while the control group was told to use only light pressure. Researchers saw no change in mobility among the control group, while the experimental group showed a significant increase in thoracolumbar fascia mobility. These findings suggest that significant pressure is needed to release tissue and enhance mobility.

SOFT ROLLERS AND BALLS

Soft rollers or balls may be a better choice for clients with chronic lower-back pain (LBP). A study on SMR's effects on thoracolumbar fascia in clients with chronic LBP (but no previous surgeries) used soft rollers and balls to apply SMR (Sanjana, Chaudhry & Findley 2017).

The researchers measured pain levels, flexibility and thickness of the thoracolumbar fascia. Results revealed significant decreases in pain and fascial thickness, plus increases in lumbar flexibility. It was not clear whether these changes could be attributed to the softness of the SMR tools. Even so, softer tools may be more tolerable for people with chronic pain.

PERCUSSION AND VIBRATION

Percussion and vibration are becoming popular in SMR products. A study using a massage stick with vibrating oscillation on 111 male break dancers found improvements in mechanical tissue properties (Gordon et al. 2016). The dancers performed self-manipulation with the stick for 8 minutes on one thigh. They saw a considerable increase in elasticity, a decrease in stiffness, significant desensitization of the treated leg and an increase in local temperature.

At follow-up, researchers revisited 30 of the original break dancers and measured tissue hydration with a bioimpedance method using the same stick. Fascia hydration had increased significantly, suggesting multiple positive outcomes from using an SMR tool with vibrational oscillation.

VIBRATION VS. FOAM ROLLERS

Intrigued by their results with the vibrational oscillation tool, the same group of researchers compared this tool with a traditional foam roller. The objective was to investigate the effects of different SMR tools on the quadriceps muscle (QM) and iliotibial band (ITB).

Volunteers were divided into a "shearing group," which used the vibrational oscillation stick, and a "rolling group," which used a traditional foam roller. The study

After three bouts of SMR on the calf of one leg for 30 seconds, participants showed an increase in ankle dorsiflexion in both the treated and untreated ankles, suggesting a crossover effect. This crossover effect points out that nothing in the body happens in isolation.

Research-Proven Benefits

SMR's

The majority of research on SMR points to these advantages:

- enhances flexibility, increasing joint range of motion without hurting performance
- eases delayed-onset muscle soreness (DOMS) and may improve recovery time from exercise, training sessions or competition
- increases parasympathetic nervous system activity, which may enhance recovery
- is inexpensive, with readily available tools

SOURCES: Schroeder & Best 2015; Beardsley & Skarabot 2015; Kalichman & David 2016.

showed that both groups had an increase in local temperature, a significant decrease in stiffness, and increased elasticity in the QM but not the ITB.

Only the shearing group saw an increase in overall hydration, suggesting that rollers and vibration tools create distinct biomechanical impulses. Rolling uses a continuum of pressure, while vibration oscillation creates a multidirectional shearing force. The study authors hypothesized that shearing from the vibration promotes better hydration (Gordon et al. 2017).

Hydration of myofascial tissue is critical for mobility and proper muscle firing. Using foam rollers and other self-massage tools can rehydrate fascial tissues (Chaitow 2009; Schleip et al. 2012). One way to visualize this is to think of a dry sponge being hydrated with water. Recommendations for rehydrating include applying slow, sustained, undulating (wavelike) passes in a variety of directions at various angles (Schleip & Müller 2013).

Massaging the Data

SMR is essentially a do-it-yourself massage. Though science has a lot to learn about its efficacy, current research shows promising results.

Many of the studies investigating SMR have examined young, healthy volunteers. Research on aging, deconditioned or injured clientele is lacking. Nonetheless, the findings we do have are interesting and certainly advocate SMR as a valid fitness methodology.

For fitness professionals, SMR represents an opportunity to help clients become more deeply invested in their training regimens. After all, SMR techniques let clients take the initiative on improving flexibility and managing the pain that often follows intense exercise. That should give them a healthy sense of release.

PJ O'CLAIR *has been a leader and consultant in the fitness industry for 30 years. The 2008 IDEA Program Director of the Year, she is a TRX® senior master instructor and a Merrithew® master instructor trainer. She has been featured in numerous fitness videos and has written extensively for industry publications.*

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CEU QUIZ: READY TO ROLL: What Science Says About Self-Myofascial Release

LEARNING OBJECTIVES: After reading the article, you should be able to:

- Explain self-myofascial release (SMR) to clients and colleagues.
- Discuss the scientific evidence behind SMR and define the various methods of application.
- List the tools available and how to use them.
- Discuss the benefits in applying SMR before and after a workout.

1. Which of the following is/are true about fascia?

a. It interpenetrates and surrounds all organs, muscles, bones and nerve fibers.
b. It may play a role in proprioception.
c. It has been described as the body's "soft skeleton."
d. all of the above

2. What is myofascia?

a. a layer of soft tissue just below the skin
b. a water-like substance enriched with blood vessels and nerve endings
c. a fibrous layer of connective tissue around and within all muscles
d. both a and b

3. What can cause adhesions in myofascia?

a. myofascial continuities
b. dehydration
c. muscular slings
d. static stretching

4. Research has shown that SMR has which of the following benefits?

a. increased range of motion, reduced DOMS and increased flexibility
b. reduced DOMS, increased flexibility and reduced athletic performance
c. increased flexibility, improved athletic performance and increased DOMS
d. increased range of motion, reduced flexibility and increased agility

5. Applying pressure to overactive myofascial tissue may cause the _____to impart an inhibitory reflex, allowing the muscle to become more pliable.

a. mitochondria
b. ATP
c. Golgi tendon organ
d. collagen

6. Which of the following SMR statements is true?

a. SMR before a workout fosters parasympathetic nervous system activity, improving performance.
b. SMR after a workout fosters sympathetic nervous system activity, enhancing recovery.
c. SMR after a workout fosters parasympathetic nervous system activity, enhancing recovery.
d. SMR before a workout fosters sympathetic nervous system activity, hampering performance.

7. Myofascial restrictions are associated with which of the following?

a. repetitive stress syndromes
b. breathing disorders
c. poor posture
d. all of the above

8. Which of these SMR protocols is recommended for triggering a parasympathetic nervous system response?

a. quick rolling on the surrounding area for 30 seconds
b. long, sustained pressure, rolling on one area for at least 90 seconds
c. slow rolling with very light pressure on one area for 20 seconds
d. quick, deep penetrating massage with a medium-density small ball for 45 seconds

9. One study compared the effects of traditional foam roller SMR to those of a massage stick using vibrational oscillation. How did the results of vibrational oscillation differ?

a. less stiffness
b. better hydration
c. more elasticity
d. higher local temperature

10. Researchers attribute SMR's potential nonlocal crossover effects to _____.

a. myofascial continuities
b. neurophysical mechanisms
c. mechanical and neurophysical mechanisms
d. none of the above

11. Which tissue was found to be the most pain-sensitive to DOMS in one study by Beardsley and Skarabot?

a. bone
b. muscle fibers
c. fascia covering muscle
d. skin

12. What SMR techniques are most beneficial for rehydrating fascial tissue?

a. slow, undulating passes in varying directions
b. fast rolling with soft rollers or balls
c. fast rolling with deep-applied pressure
d. slow, sustained pressure in one direction

13. What may be the best option if a client complains of discomfort when using an SMR tool?

a. Stop the session.
b. Change the tool.
c. Have the client drink water.
d. Add stretching.

14. If increasing flexibility is a goal, which of the following SMR programming considerations is/are supported in the research?

a. rolling speed
b. age and fitness level of client
c. time of day
d. type of roller and amount of applied pressure

15. What is the primary reason for using a soft SMR tool over a firm tool?

a. to enhance performance
b. to reduce pain
c. to warm up before a workout
d. to increase elasticity

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BY SHIRLEY ARCHER, JD, MA

POWER

Health and fitness personality Melanie Douglass has a few secrets for extending your reach and turning perspiration into inspiration. The first step? When an opportunity presents itself, say *yes*.

PHOTO: STUDIO 5, KSL-TV

YES OF

"Melanie Douglass is a true powerhouse in every sense of the word," says Michael Babbitt, co-founder of Yes! Fitness Music®, Washington, D.C., where Douglass now serves as director of business development. "She's knowledgeable but knows how to laugh at herself. She has the ability to juggle multiple projects at the same time. I've watched her film live TV for HSN [the Home Shopping Network], work on a marketing ad, tend [to] her child and order room service—while needing to board a plane in a few hours—all with a smile on her face and her signature laugh," says Babbitt.

A 24-year fitness industry veteran, Melanie Douglass, RD, has built a career—and, in fact, a full, rewarding and inherently fun life—on these foundations, stoked by a fiery passion, ebullient spirit and a propensity to respond to new opportunities with a resounding "yes!" Her success comes as no surprise to her older sister, Monica Lindsay, who remembers Douglass's early (and, even then, wildly enthusiastic) forays into fitness.

"When we were young, we would jump in and do aerobics with our mom. In our teens, we would do it at home to a Bruce Jenner or Kathy Smith workout," says Lindsay. "She's the reason that I became a certified fitness instructor." Douglass, in fact, prides herself on having recruited multiple family members and friends to become group fitness instructors—a role she, too, has played.

Over the years, Douglass, now in her early 40s, has widened her sphere of influence. She's taken advantage of diverse work opportunities and today is an international presenter, workout video producer, book author, television health-and-fitness expert, and social media leader. She embraces her role at Yes! Fitness Music. "I'm constantly pushing anyone I see with the right skill set to share this amazing journey with me," says Douglass. "Fitness is a lifelong, rewarding experience, and I want to share it with everyone!"

Colette Davis Raymond, RD, an AFAA-certified instructor in Colorado Springs who grew up

with Douglass, offers this insight as one who was personally inspired by this world-famous fitness firecracker: "Melanie is passionate about fitness and nutrition [and] about inspiring others to be healthy and to become champions of their own health. Though our paths have parted, I'm grateful every day for her encouragement and inspiration."

DESTINY'S CHILD

Douglass didn't initially set her sights on a fitness career, but every step she took seemed to bring her inevitably closer. "I was a dancer in high school," she says, "but by the time I graduated, I realized I didn't really like dancing, but I loved the way movement to music made me feel." Immediately after graduation ("probably the very next day"), Douglass joined a local health club and "started going to aerobics classes to keep 'moving to music.'"

Those were the days of "thongs and big, slouchy socks," she says of her "Retro Aerobics!" video on YouTube, and Douglass still remembers her first fitness music purchase: *Aerobics PowerMix 18.* (It started with the song "Jump!" by Van Halen.) Little did she know that one day she'd work for a fitness music company. "I listened to that tape a thousand times and practiced aerobics in my basement for hours. I started making up routines and taught myself how to cue."

In high school, Douglass's other passion was nutrition and cooking, so she entered the dietetics program at Utah State University. "I needed to work through college, so I got the idea to teach aerobics." Her family was skeptical but always supportive. "They knew I was really quiet and shy. But once I got this idea in my head, I was set on it." The whole family accompanied her to California for her AFAA certification exam. When teaching her first class (step aerobics ending with pushups and crunches), she was very nervous. "I didn't want to push them too hard. Ha-ha! A lady came up to me afterward and was like, 'Five pushups!? That was not even worth getting on the floor for.' I'll never forget it. And then the fierce, playful instructor was born."

Over the next few years, an increasingly confident Douglass continued her nutrition studies, while spending her spare time taking the NASM Certified

In 2006, Douglass joined NBC-affiliate station KSL 5 out of Salt Lake City—and host Brooke Walker, below, left—to bring health and fitness tips to audiences (both live and at home). In this episode, she shared her body image boost: Eat an apple, drink a glass of water, and get into a plank!

YOU'VE GOT THE RIGHT STUFF

With 23 years of fitness industry experience, Douglass says, "I've had amazing highs, meaningful lows and 'Let's forget that part' moments." Here, she shares the most valuable lessons she has learned. Good news: They're things you can tap into right away.

Be authentic. "Sometimes we think we have to be perfect. I've learned that people aren't drawn to my classes because I teach every format perfectly. They're drawn to me because I've focused on the things that make me authentic—that 'turn me on' and make me passionate and positive about fitness. When I feel that way, so does my class."

Master your music. "Music is the backbone of group fitness. This industry is about moving to music. Spend time finding music that motivates you, so you can share, educate and direct your class to also find that motivation."

Be contagious. "You're trying to motivate people to do hard things. They've given up time and money, arranged baby sitters and who-knows-what to make it to your class. Make sure you've got the things that get you excited about class queued up and ready for action. Then let that positive energy go!"

PHOTO: STUDIO 5, KSL-TV

Personal Trainer test, teaching aerobics and working her way up to become a fitness club program director. Though she completed her bachelor's degree in dietetics, as well as her registered dietitian certification, Douglass says her heart was always in fitness.

"I kept getting offers—exciting adventures!—in fitness," says the native of Logan, Utah. "I was fortunate to live in a small town with the largest fitness equipment manufacturer in the world, and they recruited me at age 19 to start fitness modeling." That company, ICON Health & Fitness Inc., has built such brands as Pro-Form®, NordicTrack®, iFit®, Freemotion Fitness®, Gold's Gym® and Weider® fitness equipment. It wasn't long before ICON welcomed Douglass onto their product development team "because of the positive energy coming from my love of fitness—and my driven, bossy attitude!" She followed the work.

DON'T STOP BELIEVIN'

Douglass was soon working at ICON full-time as director of fitness accessories. The job offered diverse assignments: She supervised building the company's first on-premise employee fitness center and traveled the globe presenting products to CEOs, retailers and celebrities ("A favorite was Steve Young, quarterback for the 49ers," she says). She also "got to make up products"—such as new iterations on a step design and the first-ever fitness workouts broadcast over dial-up internet—and became a video producer for ICON's fitness products.

Douglass describes becoming a workout producer as a natural evolution of all her skills. Her background in creating workouts for group fitness, as well as her opportunities to write scripts and manage people at ICON, put her "in a good place to direct the whole thing." At ICON, she hired models and a video team, made travel arrangements, selected music, and edited the final product. All this prepared her to enthusiastically accept when a fitness music supplier approached her to create its first choreography videos in the early 2000s. Her experience at ICON would also enable her to check off another of her "if the sky was the limit" goals from childhood: Become a published book author.

HEALTHY LIFESTYLE BY THE BOOK

Douglass was just 8 years old when she attempted a novel ("Handwritten. I made it to page 4!"). In her first postgraduation job as a clinical dietitian, her passion for writing bubbled to the surface when a manager asked her what she'd like to do in the next decade. Her answer—"*Write a book!*"—took him aback.

Douglass (second from left) touts one of her creations with ICON Health and Fitness on HSN.

STOKING EXCITEMENT WITH SOCIAL MEDIA CHALLENGES

FRIENDLY ADVICE FOR STOKING EXCITEMENT ABOUT SOCIAL MEDIA CHALLENGES.

Melanie Douglass and her colleagues Amy Davis, Shelley Dawson and Tori Meacham launched the social media and local TV–based "10 Pound Challenge" in 2011. Since then, it has grown to more than 20 times its original size. Here, Douglass shares suggestions on how to improve success with social media challenges.

Be yourself, not a selfie. "Too many social media challenges are about beauty or video clips without audio, or they show pictures without video. I make an effort to talk to my participants and be real. My hair was not perfect, my house was messy, my kids were crawling around, but I was doing squats in my kitchen, talking participants through each and every rep—and motivating them along the way."

Keep it simple. "I started with a daily challenge that took about 5 minutes. Keeping the program realistic and practical resonated with people. I can't tell you how many emails I've gotten from people who went on the challenge and lost 75 pounds over the next year. I have several emails from people who told me the 10 Pound Challenge changed their life."

For more information, go to facebook.com/10poundchallengeteam/.

It also showed Douglass the writing on the wall. "I realized I really didn't belong in [the field I was in]."

A few years later, Douglass was at ICON when her aspiration to write reached fruition. The Utah-based Deseret Book Company approached ICON to co-sponsor a live health tour. ICON personnel asked Douglass what she thought about the idea, and she said, "You know what goes great with a live tour? Book sales!"

Over a 6-week period, Douglass set down her thoughts on making healthy lifestyle changes that support mind, body and spirit. "I spent my days at home writing—and playing the piano to give my brain a rest. I loved it!" she says. Douglass tucked her 240-page book under her arm and took it on the "Time Out for Women" tour, where she inspired crowds as large as 3,000.

That year, Douglass was recognized by the American Dietetic Association as an "Industry Mover" for "her work in developing innovative fitness and nutrition programs for the consumer market." (Her follow-up guide, *Tip-a-Day Guide for Healthy Living: 365 Simple Ways to Improve Your Health, One Day at a Time,* also published by Deseret Book, hit bookstores in 2007.)

As ever, Douglass's signature willingness to rise to the occasion would open yet another career door: this time placing her in the role of TV personality.

LUCKY STAR

In 2006, the producer of Studio 5, a new weekday program on local Salt Lake City NBC-affiliate station KSL 5, reached out to Douglass. The program delivers lifestyle content to a target market of stay-at-home moms. Douglass accepted the invitation, initially to discuss her book. The feature went well. Douglass became the program's health and fitness contributor, a role she maintains to this day (photo on page 36). Her weekly segment is "New Move Monday," during which she presents an exercise of the week.

In 2010, to continue to build enthusiasm for her TV audience, Douglass pitched the idea of promoting an online "10 Pound Challenge," to launch in January 2011. "They thought I was kind of crazy, but they let me do it!" Most of all, she wanted to address the myth that it's bad to diet in January. "I wanted to change the dialogue," she says. "It's okay to get excited and start a new program in January. It gets people on the right track and, along the way, they learn things that affect them for the rest of their lives. They may or may not lose 10 pounds in January, but because they got caught up in the 'new you' excitement, they take a leap and learn new things, and they're in a better place." She recruited friends and colleagues to run the operation as a team.

The 10 Pound Challenge started with a Facebook

PHOTO: JENNA LEE PHOTOGRAPHY, SMITHFIELD, UT

Douglass and her friends Amy Davis, Tori Meacham and Shelley Dawson doing what they do best: working together. With their combined 80+ years of experience, they bring a collective knowledge to each of their projects.

page, support from KSL 5 and 500 participants. The second year, that number leapt up to 1,200. In its fourth year, television-viewing participants reported a collective loss of more than 11,000 pounds. And today, the program is stronger than ever, boasting more than 10,000 followers. (See "Stoking Excitement With Social Media Challenges," page 38, for Douglass's tips on achieving success with social media challenges.)

WANNA BE STARTIN' SOMETHIN'

Science holds that a body in motion tends to stay in motion, and Douglass's body is no exception to that rule. As she added each new role to her resumé (TV contributor, video producer, author, wife, mother), she continued juggling those that had come before (fitness model, consultant, nutritionist, trainer, instructor). In 2009, she put her unbridled optimism and enthusiasm to work in a new way, adding yet another role that built on all of her previous experience: She became an entrepreneur.

Douglass quit her job at ICON and founded Tonic Fitness, a company that developed a series of branded

HEALTH AND FITNESS ENTREPRENEURSHIP MYTHS

Melanie Douglass shares what she believes are three common misconceptions about being a fitness entrepreneur.

- **Myth #1:** You have to invent a product. We all want our clients to *move* more and to enjoy it. That doesn't require a revolutionary product. Often, a fresh perspective is all the spark that's needed.
- **Myth #2:** It's risky and it requires your 24/7 attention. "You don't have to go all in, quit your job or max out your credit cards," she says. "You can do small projects here and there that add to your skill set and help you be more adaptable in future endeavors."
- **Myth #3** Entrepreneurship is about money. "Be willing to do a few things for free. A few hours of volunteering your time and talent can pay off in much bigger opportunities down the road. A little hour of 'working for free' could make an impression that changes the path of your career."

workout videos, including StepTonic, DanceTonic and SculptTonic. The concept was to create turnkey workouts, including choreography and music, for instructor training as well as in-home use by everyday exercisers. Her venture, while rewarding, took a toll on her family and finances, and she learned that "you don't have to be a 'full-time' entrepreneur." Her advice to others similarly inspired? Try "baby entrepreneurship" first.

"You can do small projects here and there that add to your skill set and help you be more adaptable in future endeavors. You learn things like sacrifice, humility, perseverance, critical thinking and self-awareness (of strengths and weaknesses)—and, yes, a few projects are sure to be hallelujah accomplishments!"

Douglass returned to ICON, where she worked until 2015. Then, she says, "after I had my fourth baby, I *for realz* needed a job with less travel and pressure. That's when I started working for Yes! Fitness Music."

WALKING ON SUNSHINE

As director of business development at Yes! Fitness Music, Douglass couldn't be happier—or more excited with her diverse role. Current projects include helping fitness pros start their own businesses, inventing new formats with custom music, and navigating legal and tech issues like licensing and digital distribution. "And they are just dreamy to work for," she says of the people.

Even so, she's never far from her fitness roots. "Teaching is still the highlight of my day," says Douglass, who leads four classes a week at Logan's Sports Academy & Racquet Club. They are Pound, Pump and "a couple of formats I made up because I'm always trying new things." Of course, she has also turned her inspirational efforts toward her gym-going kids, who accompany her to the club to shoot hoops, swim or just spend some time as a family.

"When I started teaching, it was a natural fit, and I quickly knew that this was my destiny," says Douglass, reminiscing. "I wanted to create a positive environment where instructors build each other up and aren't in competition. I loved this career so much that I wanted to help people *learn* to teach." It would be stating the obvious to say that she has met that challenge thousands of times over. "And I have loved it every step of the way," she says.

SHIRLEY ARCHER, JD, MA, *award-winning certified trainer and best-selling author of 15 books, provides tips and tools to help people achieve health, happiness and optimal well-being. Reach her at shirleyarcher.com, @shirleyarcher (Twitter), @shirleyarcher (Instagram) and @shirley_archer (Pinterest).*

Douglass recruits family and friends to make a project more fun for all, here with Brooke Walker, KSL-TV; sister-in-law Leinani Jenkins; and sister Monica Lindsay.

PHOTO: STUDIO 5, KSL-TV

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BEYOND THE MAT

Here's a fitness professional's guide to 5 popular styles—and how they can benefit your clients.

The term *yoga* is derived from the Sanskrit root word *yuj,* meaning "yoke," "to join" or "to unite" (Basavaraddi 2015). Yoga unites the health of body and mind; it also unites people from all walks of life. Yoga is truly for everyone, from kids to seniors, from fitness enthusiasts to elite athletes. The benefits are well-known and can include improved focus, flexibility, strength, balance, posture, breath efficiency, blood flow, bone health and more. Yoga can also be invaluable in helping practitioners manage the pressures of today's hectic lifestyles. Simply ask those who attend classes regularly, and they will tell you themselves: They feel less stressed, they enjoy the meditative benefits of yoga, and they generally feel good after a practice.

A would-be practitioner needs only a little curiosity and patience to find his or her right yoga class style to become a believer. Yet, despite yoga's known benefits and ever-growing popularity, it can be daunting for many people, particularly since it can involve another language, bare feet and some practices that seem somewhat esoteric until fully understood.

What's more, there are many styles of yoga—something for everyone! Faced with so many choices, a newcomer may feel overwhelmed and unsure about what to try. Seasoned practitioners may find that, in time, they experience a change in taste, ability and preference in class styles or instructors. The best advice? Learn enough about yoga

HOW YOGA COMPLEMENTS OTHER WORKOUTS

BY JANE BAHNEMAN, MS

so you can help your clients and members make educated choices when seeking a class to augment or supplement their workouts with you.

Here are the highlights of five popular types of yoga, what they entail, and what one can expect from each.

Hatha Yoga: Finding Alignment

Hatha yoga focuses on pose alignment, with a great deal of emphasis placed on refining the yoga postures. Class allows for time spent holding poses, often using yoga blocks, straps, blankets and other props. Participants can expect breath work and meditation.

GETTING STARTED. Hatha yoga classes are often "leveled" (e.g., level 1 and 2, or mixed level and advanced). A skilled hatha instructor will meet you where you are, offering modifications and amplifications to enhance your experience and learning. More advanced classes will offer various inversions (going upside down), deeper backbends and more complex poses. Before attending advanced classes, participants may be required to demonstrate proficiency.

SEASONED PRACTITIONERS MAY FIND THAT, IN TIME, THEY EXPERIENCE A CHANGE IN TASTE, ABILITY AND PREFERENCE IN CLASS STYLES OR INSTRUCTORS.

Yoga By the Numbers

Yoga is touted everywhere we turn, earning its own tab on *The New York Times* website and a "special edition" of *Newsweek* magazine called *Yoga 2018*. It's no wonder: Yoga is big business. The 2016 Yoga in America Study conducted by Yoga Alliance and *Yoga Journal* found that an estimated 36.7 million people practice yoga in the United States, up from about 20 million in 2012 (Walton 2016). For perspective, that's nearly 10% of the population (United Census Bureau 2016).

The 2016 study also reported that Americans are spending $16 billion per year on class passes, studio memberships, yoga apparel, gear and related lifestyle items (Yoga Alliance 2016). And while women once dominated mat space, that is changing. Almost 30% of the folks doing downward dog and child's pose are men (Walton 2016).

While many trends come and go, as is the nature of the fitness industry, the yoga "trend" is likely here to stay. It could be because yoga is not a trend at all, as some of yoga's oldest texts trace back 5,000 years. While yoga was slow to enter the American mainstream, it has emerged with a boom and only continues to gain momentum—yet another good reason for any fitness professional to have at least a rudimentary grasp of its practice.

CROSSOVER RELEVANCE. This style is a good choice for participants who want to focus on creating good alignment habits for their various workouts; for practitioners who want to refine their poses; or for those who have physical limitations or previous injuries that may make flowing styles too challenging.

Vinyasa Yoga: Flowing Movement

Vinyasa yoga is a flowing style of yoga that links breathing with changes in body position. Participants will likely practice sun salutations, creative pose sequences, backbends, arm balances, deeper stretches and more.

GETTING STARTED. Intensity varies widely among vinyasa classes, which range from gentle vinyasa and slow-flow classes to fast-paced demanding practices. It is recommended that new students speak to the teacher about his or her style or find a good fit by sampling a variety of flow classes.

CROSSOVER RELEVANCE. Vinyasa classes are often a great place for fitness enthusiasts to begin a practice, as these classes tend to have a lot of physical movement and can be quite engaging! Vinyasa yoga flows, when practiced with different planes of motion in mind, can be very functional in nature and will complement many fitness programs.

Kundalini Yoga: Elevating Mind, Body and Spirit

This style of yoga unites breath, movement, mantra and meditation to engage the mind, body and spirit. Classes typically consist of a series of postures taught in various time-honored sequences to produce specific, desired effects. Kundalini aims to help students deepen their awareness; stimulate the immune, glandular and nervous systems; balance the energetic system; and connect with their creative energies.

GETTING STARTED. Classes are welcoming to all levels of practitioners. People new to this practice may

find it less "mainstream" than other yoga styles. Devoted practitioners often practice in all white and may even cover their heads. Chanting is a common practice in kundalini, as is repetition of movement in series called "kriyas." Participants open to doing a deeper dive into the practice will ultimately see that there is a valuable "Why?" to every sequence.

CROSSOVER RELEVANCE. This style is a great omnidirectional wellness regimen. The requisite discipline and ultimate unification of mind, body and spirit can serve as a strong foundation for clients seeking sustainable wellness. Those looking for a community that offers a spiritual level of support may find this style appealing.

Yin Yoga: Slow and Steady

Yin yoga is a slow, deep yoga practice designed to stretch the body's connective tissue and increase joint mobility. Its practitioners believe that energy—prana, or chi—accumulates in the joints and dense connective tissue of the body, particularly as we age. As the body becomes less viscous with age, bodies become stiffer and less mobile.

GETTING STARTED. A yin yoga class enables practitioners of all ages and levels of experience to access the benefits of a more vital body and more vibrant flow of energy. Typically, all levels are welcome; postures are practiced near the floor and held for longer than in other styles. The moves are great for recovery and for cultivating patience in quiet stillness.

CROSSOVER RELEVANCE. In this style, perhaps even more than in hatha or vinyasa yoga, the pacing lends itself particularly well to clients whose physicality makes other styles difficult to pursue safely.

Restorative Yoga: Relax, Renew

Using yoga blankets, bolsters and props (even chairs), restorative

classes include a grounding blend of supported poses, breath work and relaxation techniques. The result: relief from tension and a restoration of mind and body, effects that are very much needed in today's "always on" world, where people say they have no time for relaxation. Designed to bring the body into deep parasympathetic nervous system dominance (relax, renew, rest and digest), restorative yoga spaces are likely to be warm and inviting.

GETTING STARTED. Restorative classes are appropriate for all levels, and participants will often experience profound stress relief from a regular restorative practice. Initially, participants may notice their thoughts racing and find they are unable to quiet their minds. They may even feel restless or agitated. These are common occurrences as students train their bodies and minds to truly rest and recover.

CROSSOVER RELEVANCE. This is the elixir for a stressed-out client or participant. Like yin, this practice lends itself to all body types, fitness levels, ages and levels of experience. It can be of particular use for endurance or elite athletes who are seeking to avoid burnout, are rehabbing from an injury or are in recovery mode during the offseason.

Body of Evidence: Yoga Is Effective!

The tools of yoga can be successfully applied to personal training sessions and group fitness classes in a variety of ways. Namely, focused breath work will help to create respiratory efficiency and improved focus; mindfulness practices can teach a client to engage fully in a workout experience and therefore reap its maximum benefits; and body awareness, strength, flexibility and balance gains can transfer easily into the fitness space, creating more powerful workouts from start to finish.

A Practical Way to Build Your Brand

To take a closer look at how yoga can complement your clients' and members' training, consider the AFAA Practical Yoga Instructor Training course. This online course takes yoga's "unity" principle one step further, bringing together AFAA's traditional methods of group exercise instruction with a unique Sunrise Yoga Format™. This gentle approach will show you how to create a flow of yoga movements, progressing participants safely through a series of poses, while making modifications needed to address fitness levels or constraints. It also gets you 7 AFAA/0.7 NASM CEUs closer to your certification renewal goal. Learn more at afaa.com/courses/practical-yoga-instructor-training.

A YIN YOGA CLASS ENABLES PRACTITIONERS OF ALL AGES TO ACCESS THE BENEFITS OF A MORE VITAL BODY AND MORE VIBRANT FLOW OF ENERGY. ITS MOVES ARE GREAT FOR RECOVERY AND FOR CULTIVATING PATIENCE IN QUIET STILLNESS.

NOT ONLY DOES YOGA BRING TOGETHER MIND AND BODY HEALTH; IT ALSO UNITES PEOPLE FROM ALL WALKS OF LIFE. YOGA IS TRULY FOR EVERYONE, FROM KIDS TO SENIORS, FROM FITNESS ENTHUSIASTS TO ELITE ATHLETES.

For the skilled fitness professional, personal experience, whenever possible, is invaluable. This year, why not put yoga on your continuing education list? Try a variety of class styles in person, or explore yoga styles and classes online, if necessary. Becoming better-versed in this practice will enable you to add another layer to your already-solid professional foundation. Just don't be surprised if you find yourself transforming from an inexperienced dabbler to an enlightened devotee.

JANE BAHNEMAN, MS, NASM-CPT, CES, *holds certifications in yoga (E-RYT 500, Prenatal-RYT), group exercise and Spinning®. She owns the Blue Nectar Yoga Studio (www.bluenectaryoga.com), has taught yoga for two decades and authored the video series* Yoga Education Built for Fitness Professionals.

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Keeping an Open Mind About Yoga

Yoga is a practice that includes, but is not limited to, *pranayama* (breath work), *asana* (postures), *meditation* (focus) and *self-reflection* (a deep dive into ourselves through various time-honored techniques). It is these last two elements that may lead to the misconception that yoga is a religion. It is not. However, the spiritual teachings of the yogic tradition can *complement* a person's religious practices. Addressing this point may help some clients be more open to giving yoga a try.

Yoga classes stretch across a continuum that ranges from fitness-based sessions (feeling more like workouts and including little or no discussion of spirituality) to those that de-emphasize sweat and focus on energy and mysticism. Of course, many studios offer classes that are a nice mix of the two! For newcomers, it's ideal to remain open to the growth—in mind, body and spirit—that can bloom from a curious mind and a committed practice. In plain terms, yoga is a great tool for getting to know yourself—your own tendencies, habits, triggers, fears and humanness—with a nonjudgmental, compassionate eye. And whether you choose to embrace the deeper aspects of yoga or to leave these ideas at the door, you and your clients will discover the benefits of a yoga practice.

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BRACE YOURSELF: ABDOMINAL BRACING INVOLVES TIGHTENING ALL CORE MUSCLES, AS IF TENSING TO DEFLECT A BLOW TO THE MIDSECTION.

Core Objectives: Making a Case for Progressive Core Training

MANY CLIENTS FOCUS ON STRENGTH MOVES IN THE PURSUIT OF A SIX-PACK. HERE'S WHY IT'S IMPORTANT TO START WITH STABILITY INSTEAD.

BY RICK RICHEY, MS

Some fitness professionals see the word "core" as gimmicky and replace it with words like "trunk," "center" or "column." Others resist the term because they feel it lacks a clear definition. Here's an easy, if slightly disconcerting, way to visualize the core: "Unplug" the arms, legs and head, and the core is everything that's left!

In more technical terms, the **lumbopelvic-hip complex,** along with additional muscles that act on the spine, is often considered the "core of the core." The LPHC includes the lumbar spine, pelvic girdle, abdomen and hip joints. The muscles of the core are, then, any muscles that cross over or directly act upon the LPHC (NASM 2018).

Whatever you call the core, or however you picture it, understanding its function and movements is essential for fitness professionals because this area of the body is the foundation for our ability to produce nearly all movements. If the core cannot support a particular exercise, then the arms and legs involved in it cannot produce the requisite force or speed. This is why fitness professionals often state that *every* exercise is a core exercise.

A Logical, Progressive Approach to Core Training

As with any good regimen, a core training program must be designed to progress exercise participants safely and logically, providing a strong foundation (literally) before introducing strength or power moves. Too often, trainers and clients skip the stabilization phase, opting for more exciting and dynamic movements.

Limits in core stabilization training can impede performance outcomes, as well as structural and movement efficiency, and may ultimately lead to injury or pain. In fact, a lack of core stability and proper mobility may lead to back pain in some people, and providing appropriate exercises to strengthen the core can mitigate such pain (Gomes-Neto et al. 2017). Our job as personal trainers is not to address or treat pain, but we are well within our limits to address stability and movement deficiencies.

NASM's exclusive Optimum Perform-

ance Training™ (OPT™) model offers a pathway for progressing functional abilities, including flexibility, core stabilization, balance, strength, power and cardiorespiratory endurance (see "Sample: Progressive Core Workout," page 52). In this article, we'll look at stabilization, strength and power in NASM's OPT model as it relates to core training.

Assessing a Client's Core Stability

Understanding the movements of the spine is imperative to better understanding the core. The spine can be stabilized in all planes, flex and extend in the sagittal plane, flex laterally in the frontal plane (side bend), and perform a combination of these movements in and through multiple planes concurrently (as in a crunch with rotation). In a core training program, the client should begin at the highest level at which he or she can maintain stability while performing an exercise with proper form.

Various movement assessments can identify whether core stabilization is lacking. Here are some, but by no means all, of the options available:

- double-leg lowering test
- pushup
- overhead squat assessment (OHSA)
- floor bridge (without arching or rounding the spine)
- quadruped opposite arm/leg raise (bird-dog)

Status and progress are evaluated through reassessments, when the trainer gauges whether the client is ready to progress to more dynamic core exercises.

Core Stability Essentials: Bracing and Drawing In

There are two main types of core stability: intervertebral stability and lumbo-pelvic stability.

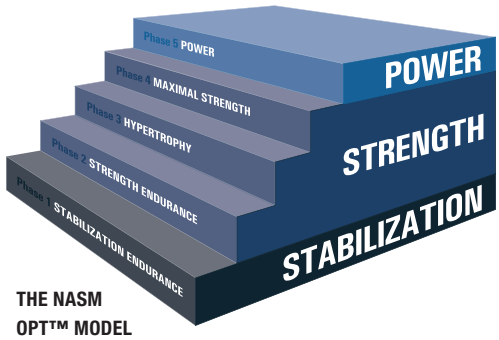
Intervertebral stability is the ability to minimize movement between vertebrae. This can be done through activation/facilitation of smaller muscles like the transverse abdominis, diaphragm, pelvic-floor muscles and small paraspinal muscles (such as the multifidus). Exercises include Kegels and drawing in (pulling the navel toward the spine).

Lumbo-pelvic stability is the ability to minimize movement between the rib cage and pelvis. This can be done through abdominal bracing (isometric tightening of the core muscles).

Be sure to begin core training by cuing clients on how to perform the drawing-in maneuver and abdominal bracing, as both are essential for performing core exercises properly and safely.

Core Stabilization Exercises

Stabilization is the first phase of core training, according to the NASM OPT model. At this level, there is little to no movement of the spine. By applying this



THE NASM OPT™ MODEL

FACQ: Frequently Asked Core Questions

HERE ARE SOME ANSWERS TO HAVE READY, AS YOU'RE LIKELY TO HEAR THESE QUERIES AT SOME POINT IN YOUR CAREER!

Can I work my abs every day?

The rectus abdominis, erector spinae, obliques and all other core muscles are similar to every other muscle in that they need time to recover from intense workout bouts. Because the core is an integral part of all functional workouts, you will be working it to some extent in any such sessions. But if you do a more focused and exhaustive core workout on a particular day, take the next day off so your core can recover.

Are there really "upper" and "lower" abs?

Only when it comes to location, not function. For instance, is there an upper part and a lower part of an escalator? Sure, but the escalator, like the rectus abdominis, works as one unit. People may *feel* their "lower abs" during leg lifts and knee tucks, but as someone once said, "Feelings aren't facts." That sensation is caused by the psoas muscles that anchor to T12–L5, which happen to be under the lower portion of the rectus abdominis.

Will core training give me a six-pack?

Reasons for working on core muscles should not include the statement "So I can see my abs." Core muscles do hypertrophy, but not well. And there is little to no chance that clients will see their abs without losing fat in the midsection. Core exercises will improve function and performance, but it is weight loss that helps abdominals become more visible.

Sample: Progressive Core Workout

The following program was created using the NASM OPT™ model. NASM recommends that core exercises be done early in the workout—after the warmup and before the resistance training portion—to activate or "wake" the core musculature. However, when core exercises precede resistance training, they should not be performed to the point of exhaustion, or it defeats the purpose.

LEVEL 1
CORE STABILIZATION EXERCISES

1–3 sets of 10–15 reps per side at a slow tempo.

Side Plank (Side Iso-Abs)

Draw in and lift, holding for 5 seconds with purposeful engagement of the core and leg musculature. Keep the head, shoulders, hips, knees and feet in a straight line.

Cable Anti-Rotation Chest Press (Pallof Press)

With resistance anchored to the side, stand with the feet hip- to shoulder-width apart, and hold the handles at chest height. (The narrower the stance, the more difficult.) Draw in the navel, tighten the core muscles and engage the glutes. Press the handles away from the center of the chest, avoiding any movement or rotation of the LPHC during the exercise.

LEVEL 2
CORE STRENGTH EXERCISES

2–3 sets of 8–12 reps at a medium tempo.

Cable Rotation

This progression adds spinal and hip rotation. The torso stays tall, chest up. *Tip:* Cue clients to think of the trunk as the perturbator in a top-loading laundry machine, spinning around a single axis without tilting.

Stability Ball Back Extension

Brace feet against the wall or a stable machine, and align the ball low on the abdominal region. Flex the spine over the ball, and then extend using the erector spinae muscles while still holding the glutes and leg muscles tight.

LEVEL 3
CORE POWER EXERCISES

2–3 sets of 8–10 reps, as fast as possible with control.

Note: Use light weight so that every rep is as fast as the previous. Once slowdown occurs, there is no longer coding to increase the rate of force production.

Medicine Ball Rotation Chest Pass

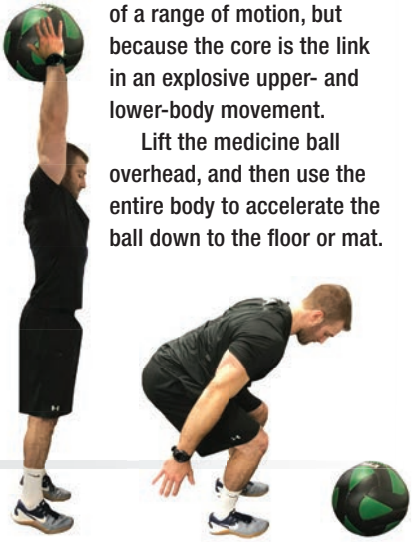
This progression from the cable rotation exercise focuses on lighter weights (a ball) so that the throw can be explosive, since that is how power is developed.

Stand sideways, about 3–5 feet away from the wall, feet parallel to the wall. Twist the body 90 degrees (chest is now facing the wall) while explosively throwing the ball against the wall. (Choose a type of ball that will not damage the wall on impact.)

Medicine Ball Slam

This is a good core power exercise, not because the spine is going through much of a range of motion, but because the core is the link in an explosive upper- and lower-body movement.

Lift the medicine ball overhead, and then use the entire body to accelerate the ball down to the floor or mat.



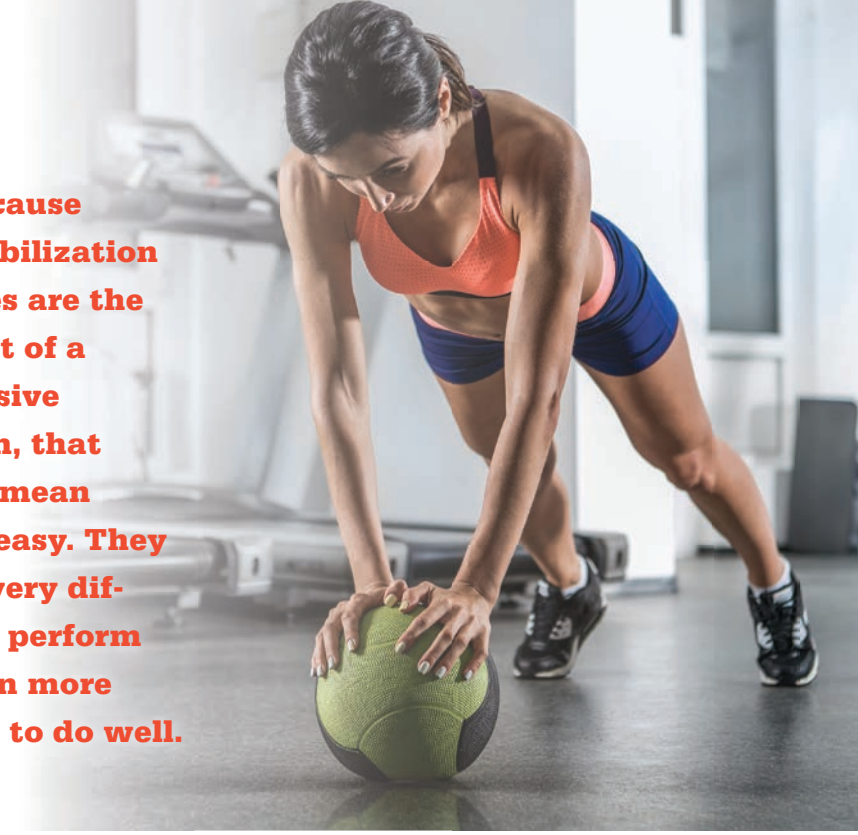
simple guideline, we can more easily provide a taxonomy for exercise. We can add anti-rotational exercises like these:

- plank (prone iso-abs)
- side plank (side iso-abs)
- floor prone cobra (without spinal extension)
- floor bridge (as long as the spine is not dipping or hyperextended)
- cable anti-rotation chest press (Pallof press) (standing or kneeling)

Other exercises that integrate the core are not necessarily core-focused, but they do require the core to remain strong and incredibly stable. For example:

- pushups
- bent-over rows
- kettlebell swings
- deadlifts
- asymmetrically loaded carries

Just because core stabilization exercises are the first part of a progressive program, that doesn't mean they're easy. They can be very difficult to perform and even more difficult to do well. These exercises can also be made increasingly difficult when a trainer adds unstable tools, perturbations and different force vectors.



Just because core stabilization exercises are the first part of a progressive program, that doesn't mean they're easy. They can be very difficult to perform and even more difficult to do well.

Core Strength Exercises

Core strength exercises require movement of the spine through relatively large ranges of motion and integrate the full muscle-action spectrum (eccentric, isometric and concentric muscle actions). These movements include flexion, extension, lateral flexion, rotation and a combination of those joint actions.

Exercisers usually start in this phase and rarely leave it. Here are some of the common exercises:

- crunches
- back extension
- side bends
- trunk rotations

These core-focused exercises can also integrate resistance through the use of bands, cables, medicine balls and free weights. A twist can be added, too, as in cable and medicine ball rotations and back extensions.

Core Power Exercises

Core power exercises utilize little to no resistance and focus on the movement's rate of force production (speed). For most clients and trainers, these exercises are fun, because they usually involve throwing things! Here are some examples, which are typically done with a medicine ball:

- rotation chest pass
- overhead crunch throw
- soccer throw
- medicine ball slam

Be sure to use the right type of ball (as in a wall-ball version of a medicine ball) and to throw against a surface that can take the beating (no drywall!). Even though power training focuses on the explosive concentric phase, we cannot achieve this without eccentrically lengthening, or stretching, the muscle. The idea is to spend as little time as possible transitioning from the stretching phase back into an explosive concentric movement.

With all parts of the muscle action spectrum supported by good core stability and balance, we can develop a high-functioning integrated performance paradigm and stretch-shortening cycle (NASM 2018).

A Workout With Science at Its Core

While some voices within and outside of the fitness industry have expressed concern over the potential negative impact of core exercises on the lower back, "numerous studies … support the role of core training in the prevention and rehabilitation of low back pain" (NASM 2018). So, you should not be afraid of core exercises, and neither should your clients.

Of course, any exercise that causes back pain should be avoided, be it a core stability exercise like a plank; a core strength exercise like a crunch; or a core power exercise like a rotation chest pass. Otherwise, placed within a well-designed progressive and systematic training protocol such as the NASM OPT model, these moves are fine. In fact, when clients follow this type of program, they can develop a core musculature that protects the spine during workouts as well as everyday activities.

RICK RICHEY, MS, LMT, NASM-CPT, CES, PES, *is a fitness industry educator and owner of ReCOVER and Independent Training Spot in New York City. He has trained numerous high-profile and traditional clients and is completing his doctoral dissertation in health science at California University of Pennsylvania.*

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Power in Motion: Using Watts to Amp Up Indoor Cycling Drills

ARE PARTICIPANTS MAXIMIZING CALORIE BURN OR JUST SPINNING THEIR WHEELS? A SIMPLE PHYSICS EQUATION CAN HELP YOU (AND YOUR RIDERS) DO THE MATH.

BY KRISTA POPOWYCH

We have all seen "those riders" who pedal super-fast on their indoor cycles with little or no resistance. They're smiling, sweating and bouncing around in the saddle, brimming with an unbridled enthusiasm that we love. Their workout *appears* intense and productive, but is it? How do you know? (Spoiler alert: It's not. More on that later.) And how do you convince these riders to literally change gears to improve their performance?

For an indoor cycling instructor, one of the many challenges is knowing which cues will enable participants to reach their workout goals. Gym members aren't snapping into the toe clips of their bikes with the object of burning as *few* calories as possible. Yet, without the correct ratio of gear to revolutions per minute, riders may be doing just that.

The key to helping indoor cycling enthusiasts turn up their burn lies in two buzzwords you've surely heard sweeping the group indoor cycling scene: *power* and *watts*. Here's a quick brush-up on physics, power and watts—with tips on how to help members use the bike's digital display to get the ride of their lives.

A Powerful Equation

Generally speaking, **POWER** is a function of **FORCE** multiplied by the **VELOCITY** at which the rider is pedaling:

Power = Force × Velocity

In the case of cycling, wattage (power) is equal to gear (force) multiplied by revolutions per minute (velocity):

Wattage = Gear × RPM

As this equation illustrates, power is not a reflection of either gear or rpm by itself. An increase in *both* velocity *and* force will result in a higher intensity than an increase in either of them alone.

Many exercisers think of power training as something that happens in a weight

room and involves relatively high-speed, high-load exercises that are performed with an explosive intention. But we can extrapolate that same concept to the cycling studio.

A Powerful Connection

In the scenario of those furiously pedaling, seat-bouncing cyclists using a low gear, velocity is high, but force is low, so wattage will be low, too. We can infer a similar outcome for riders pedaling at very challenging loads but barely turning the crank arms—a habit called "mashing" the pedals. For pedal mashers, force is heavy, but velocity and, in turn, wattage are also low. These riders, like the bouncers, appear to be working hard as they struggle to complete a revolution. But in both cases (bouncing and mashing), the riders are not truly maximizing their power output. What's more, riding at high speeds is often compromised by poor technique, and using heavy gears and low cadence can set the stage for knee injuries (Young 2016).

While you may be able to spot these issues (and cue riders so they can correct them), the display on an indoor cycle offers a concrete crosscheck that is easy to see quickly and objectively. In fact, this is precisely why power training has become the gold standard for *outdoor* cyclists, who once tracked progress with mileage and heart rate. Whereas heart rate training can vary greatly—based on the body's physiological responses to temperature, hydration, exercise duration, caffeine, endorphins, overtraining and other factors—training with power is a mechanical response. It measures how hard you can push at what velocity, regardless of whether you're jacked up on caffeine or had a bad night's sleep. And the only way to manipulate power outputs, unlike heart rate results, is to do the work.

Power is a great tool for setting goals and measuring improvement. If a rider usually averages 130 watts per hour, for example, and a month later is averaging 150 watts per hour, he or she is definitely getting stronger.

If you have riders who can't seem to move out of the middle of the pack on the club's leaderboard, regardless of how hard they are pedaling, encourage them to focus on their own gains, not on their rank.

Using Watts to Boost Workouts

Riders who are familiar with wattage only in terms of lightbulbs may know little about how watts work. But participants don't really need to understand the physics to see how they can manipulate variables to raise or lower their average watts. In short, higher watts means greater calorie burn! Use these steps to show riders how variations in force and velocity affect power:

1. HOLD SPEED STEADY AND INCREASE GEAR. Ask riders to hold a specific cadence (e.g., 80 rpm) and then gradually increase gears. Tell them to note that wattage rises following each gear increase.

2. HOLD GEAR STEADY AND INCREASE SPEED. Cue participants to drop a few gears and then gradually increase rpm while leaving the gear alone. Again, cue riders to watch their watts on the display; they will go up.

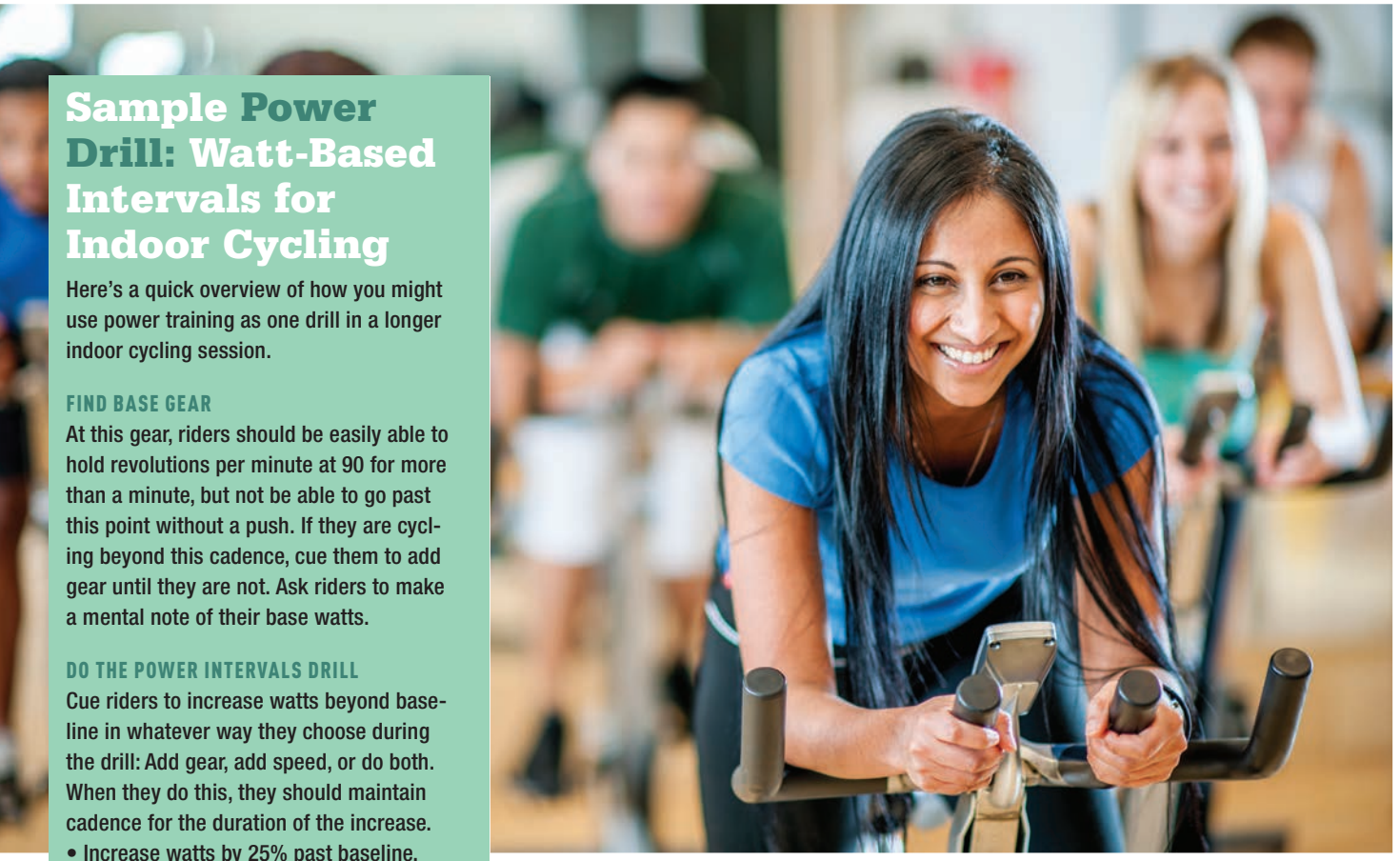
3. SELECT A FAST SPEED AND DUMP THE GEAR. While riders are pedaling at a high rpm, have them quickly drop gears, or "dump the gear" down to a very light resistance. They will see their watts drop drastically even though they are pedaling fast. They will also experience how their riding technique starts to fall apart at high speed and low gear, thus emphasizing the importance of cycling with some resistance. This is a good time to point out how they can use physical cues to determine when it's time to switch gears.

Giving Riders More Control of Their Training

Focusing on watts provides an individualized approach to monitoring intensity. For example, let's say you cue an interval drill with a goal to increase watts by 40 from one interval to the next. In this scenario, riders have three choices:

- Stay at their current cadence and add gear.
- Stay at their current gear and speed up.
- Adjust both gear and cadence.

How each rider hits the wattage goal is a matter of preference: Increase speed, increase gear, or do both. Having this control is particularly beneficial for riders who prefer a certain cadence and don't want to deviate much from that speed.



Sample Power Drill: Watt-Based Intervals for Indoor Cycling

Here's a quick overview of how you might use power training as one drill in a longer indoor cycling session.

FIND BASE GEAR

At this gear, riders should be easily able to hold revolutions per minute at 90 for more than a minute, but not be able to go past this point without a push. If they are cycling beyond this cadence, cue them to add gear until they are not. Ask riders to make a mental note of their base watts.

DO THE POWER INTERVALS DRILL

Cue riders to increase watts beyond baseline in whatever way they choose during the drill: Add gear, add speed, or do both. When they do this, they should maintain cadence for the duration of the increase.

- Increase watts by 25% past baseline. Ride for 60 seconds.
- Recover at baseline watts for 60 seconds.
- Increase watts by 50% past baseline. Ride for 45 seconds.
- Recover at baseline watts for 60 seconds.
- Push to increase watts by 75% past baseline. Ride for 30 seconds.
- Recover at baseline watts for 60 seconds.
- Final challenge! Attempt to *double* baseline watts! Ride hard for 15–30 seconds.

ACTIVE RECOVERY

Cue riders to dump the gear to base or below (active recovery). Ride 2 minutes while hydrating before starting the next drill. Watts should drop way down during this time.

Helping Riders Get in the Zone

Wattage goals will vary from person to person. No exact watt number is appropriate for all riders.

Generally speaking, a beginner cyclist may average around 75–100 watts in a 1-hour workout. A fit participant will average more than 100 watts, and pro cyclists can reach 400 watts per hour.

Establishing a rider's wattage goals can be done through power testing, which can also be used as a basis for power zone training.

FUNCTIONAL THRESHOLD POWER is the highest power a rider can maintain in a quasi-steady state for 1 hour without fatiguing (Allen & Coggan 2010). When power exceeds FTP, a rider will tire more quickly than if he rides just below his FTP. Power zone training uses a rider's baseline FTP to establish specific individualized watt ranges (zones) for goals such as active recovery, endurance, tempo, anaerobic threshold and more.

Some instructors lead riders in a 20-minute test during class with a correction factor of minus 5% (so it correlates with the 1-hour test). Or, with the benefit of today's technology, riders can perform their own FTP test using a guided app on their smartwatch or smartphone. Of course, none of this is necessary if your facility has gamified leaderboards that track watts and project them on a screen behind the instructor. Just remind participants that their rank doesn't tell the whole story. They should compare *their* watts to *their* watts, not someone else's.

Go Ahead: Harness the Power

Just about any favorite drill can be rejigged to focus on power (see the sample workout at left). Training with power in the indoor cycling setting adds a new dimension to group classes. At the end of the day, group exercise participants want variety, individualized workouts and, most of all, *results*. Power training can pave the way to effective and inspiring rides and measurable improvements that can keep you and your class riding high.

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BY ALEXANDRA WILLIAMS, MA

Do We Underestimate Young Clients' Motivation for Healthy Eating?

Is body mass index an indication of how successful a teen will be with making healthy choices?

As overweight and obesity affect 32% of children and 69% of adults in the United States, it's paramount to find ways to motivate clients of all ages to eat more healthfully. A *BMC Obesity* paper published online in November 2017 looked at adolescents' perceived competence for healthy eating and exercise, as well as their level of motivation to engage in these habits. Though the study's authors had hypothesized that "overweight/obese" teens would have lower levels of self-motivation and perceived competence in these areas, the findings revealed quite the opposite. In fact, this group demonstrated *higher* levels of perceived competence for healthy eating than did "normal-weight" teens. As for self-motivation, levels were similar across the board, though influence from outside sources (such as family and peers) was higher for the teens with higher BMIs.

Encouraging the "Right" Kind of Motivation

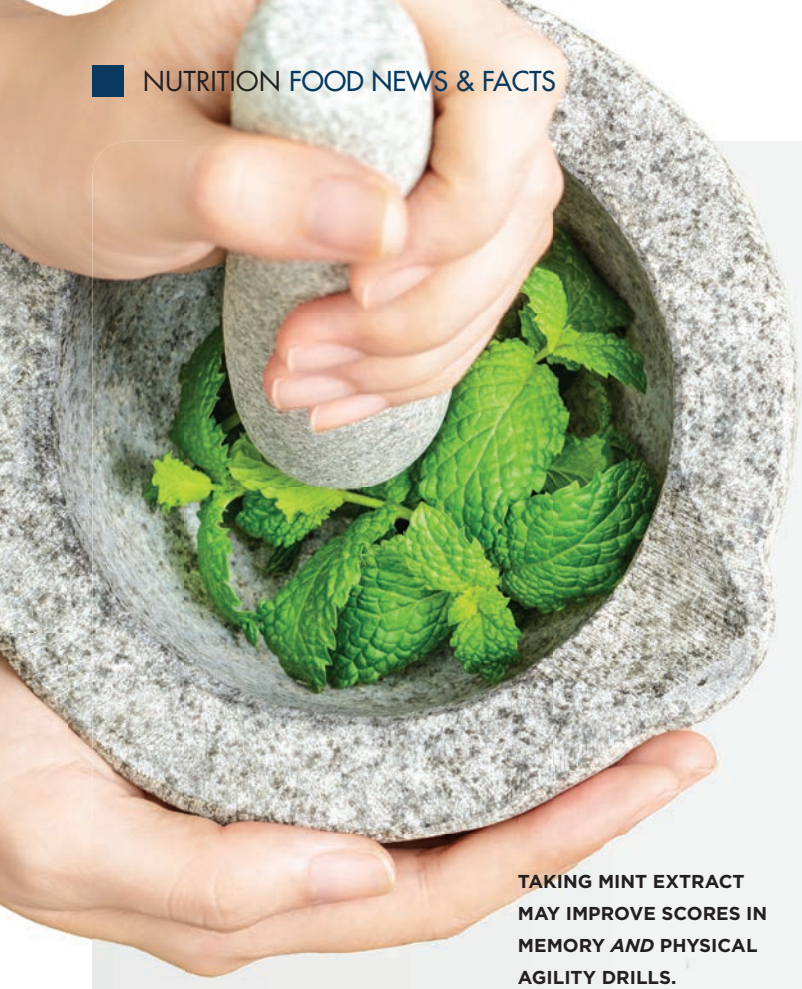
One of the study authors, Jennifer K. Yee, MD, associate professor of pediatrics in the division of endocrinology at Harbor-UCLA Medical Center, offers this advice for fitness professionals when meeting with a teen looking to make healthy lifestyle changes for weight management:

Identify current motivators. "It is important to understand where the individual is in his or her own weight loss journey," says Yee. She suggests asking, "What are your reasons for wanting to eat healthfully (or exercise)?" Answers that reflect the teen's personal beliefs for wanting to make the change reflect **autonomous motivation,** which is more likely to result in sustainable change than is **controlled motivation** (such as peer or family pressure).

Look for reasons within. "You can assist the teen in promoting autonomous motivation by asking, 'What are some of the benefits that you feel from exercise (or healthy eating)? What are some reasons you might want to continue this exercise schedule (or healthy eating pattern)?'" says Yee.

Help them reimagine the end goal. "Focus should remain on maintaining the exercise schedule or healthy eating pattern rather than on actual weight loss," says Yee, "since there are many health benefits from these behaviors regardless of changes in weight."

Editor's note: For more advice on how to develop your behavior change dialogue, read "Motivational Interviewing: Steps to Behavior Change" on the NASM blog (blog.nasm.org).



TAKING MINT EXTRACT MAY IMPROVE SCORES IN MEMORY *AND* PHYSICAL AGILITY DRILLS.

A Brain Booster That Enhances Athletic Performance

Could chewing spearmint gum improve sports performance? It would have to be a lot of gum to deliver enough rosmarinic acid and phenols to make a difference. Good news, though: Neumentix, a spearmint extract launched in 2014 as a cognitive performance enhancer, could do the trick.

Data presented recently at the International Society of Sports Nutrition conference indicate that a daily 900-milligram dose of this product (which contains 14.5% rosmarinic acid and 24% total phenolic content) is associated with significant improvements in athletic reaction time after 7 days, plus improved focus and agility after about a month. At the end of the 90-day study, participants were still enjoying these perks. The double-blind, placebo-controlled study, which was funded by Kemin Foods (maker of Neumentix) and led by Paul Falcone from the MusclePharm Sports Science Institute, involved 142 healthy men and women with an average age of 27.

EAT TOMATOES, BREATHE EASIER

Researchers from Johns Hopkins Bloomberg School of Public Health looked at diet and lung function in 680 adults over a 10-year period. The scientists discovered that a higher intake of tomatoes correlated with a slowdown in the decline of forced vital capacity (the amount of air that can be forcibly exhaled after taking in as much air as possible). And a higher intake of tomatoes was linked to significantly slower decrease in function among former smokers, suggesting that fruit helps repair damage done by smoking.

Using Blood Glucose to Choose the "Best" Weight Loss Diet

SUCCESS RATES DIFFER BETWEEN PEOPLE WITH HIGH BLOOD SUGAR AND THOSE WITHOUT.

For decades, weight loss research has centered on an unsubstantiated belief that there's one "best" diet for everyone. Recently, though, researchers found that the optimal diet choice for a particular person may depend upon his or her fasting blood sugar and/or fasting insulin levels, according to a weight loss biomarker study published in *The American Journal of Clinical Nutrition* (2017; 106 [2], 499–505).

The study analyzed results from three randomized clinical trials involving more than 1,200 participants. Researchers found that people with prediabetes were more successful losing weight on a low-glycemic diet (low in carbohydrate) or New Nordic Diet (high in fiber and whole grains) than they were on a high-glycemic (high-carb) eating plan. What's more, the high-blood-sugar group was more susceptible to regaining lost weight when following a diet with a high-glycemic load. Interestingly, people whose blood sugar was "normal" when they embarked on these programs didn't show as much variation from diet to diet. In fact, their comparative gains and losses were between 0.5 and 2 kg, whereas the prediabetes group had variations of 3–6 kg, depending on which plan they followed.

The study authors concluded: "This easily accessible biomarker [blood sugar] could potentially magnify weight loss and optimize weight maintenance by stratifying patients to provide personalized dietary guidance for overweight and obesity."

The RDA for Protein Won't "Do" for You

ISSN UPDATES ITS POSITION ON EXERCISE AND PROTEIN.

Ten years ago, the International Society of Sports Nutrition (ISSN) published its first position stand on exercise and the use of protein. Since then, a slew of research has been published, and protein consumption has increased among athletes of all levels. In response, the recently updated ISSN position stand includes new information regarding the "dietary protein categories that affect physically active individuals across domains such as exercise performance, body composition, protein timing, recommended intakes, protein sources and quality, and the preparation methods of various proteins."

Some highlights from the paper (found in its entirety at doi.org/10.1186/s12970-017-0177-8) are particularly intriguing. Perhaps most notable: For a training athlete, the current Recommended Dietary Allowance for protein—0.8 gram per kilogram of body weight per day—is *not* sufficient to meet daily needs. Learn more below.

For building and maintaining muscle mass, an overall daily protein intake in the range of 1.4–2.0 g/kg/d is sufficient for most exercising individuals.

To maximize muscle protein synthesis (MPS), 0.25 g/kg/d of a high-quality protein is recommended (daily total of 20–40 g/d). For senior men (mean age of 71), higher doses (about 40 g/d) are likely needed to maximize MPS.

To promote fat loss, resistance-trained individuals may benefit from taking in more than 3 g/kg/d. *Note:* The amount of protein intake surrounding resistance training appears to matter more than the timing of intake (before or after a workout).

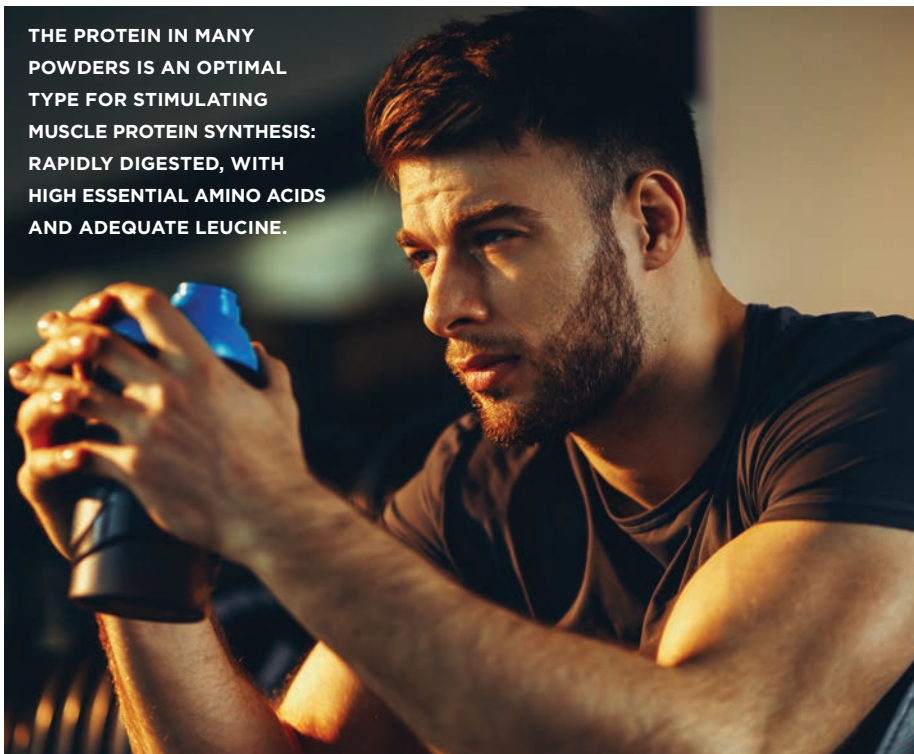
Athletes who are at a high training level may find supplementation a practical method for ingesting adequate protein while minimizing caloric intake; however, they should still emphasize whole-food sources of protein that contain all of the essential amino acids.

For endurance athletes, protein intake doesn't appear to improve endurance performance, but the addition of protein may help to offset muscle damage, reduce delayed-onset muscle soreness and promote recovery.

Of course, everyone has different goals, needs, preferences and metabolic profiles, which makes it important to consult with a qualified nutrition professional to create an individualized protein plan. Be sure to refer clients appropriately if nutrition is outside of your scope.

BY THE NUMBERS

700–3,000 milligrams: Amount of **leucine** ISSN recommends as the goal for a single dose of protein, along with a balanced array of essential amino acids.



THE PROTEIN IN MANY POWDERS IS AN OPTIMAL TYPE FOR STIMULATING MUSCLE PROTEIN SYNTHESIS: RAPIDLY DIGESTED, WITH HIGH ESSENTIAL AMINO ACIDS AND ADEQUATE LEUCINE.

2018 Food Trends: Flowers, Fruits, Stems and Roots

Whole Foods and The Specialty Food Association released their annual food trend report on BusinessWire.com, and you may want to revamp your garden. Today's restaurant menus are replete with recipes based on rinds, roots and stems, and home cooks may not be far behind in offering similar fare. Some top trends for 2018:

- more dairy products from plants (give oat milk a try)
- flower-based drinks and snacks (elderflower soda or dandelion jam, anyone?)
- air-popped, puffed and dried root snacks, such as parsnip and jicama chips
- new sugar alternatives, including syrups made from dates and sorghum
- cannabis snacks (With recreational marijuana use now legal in eight states, expect this category to boom, not burn out.)

Also look for an uptick in Filipino and Middle Eastern offerings and a resurgence in traditional bread (made with freshly milled whole grains), plus a demand for deeper levels of transparency. Beyond non-GMO, organic, Fair Trade, pasture-raised and cage-free, people want to know exactly what's in their food, how it became food, and each food's nutrient and calorie content. You may want to read the whole report from November 6, 2017, so you're in the know when clients bring up a new trend.

A DAILY HALF-CUP SERVING OF COOKED KALE, COLLARDS, GREENS OR SPINACH (OR 1 CUP OF RAW LETTUCE) OFFERS SIGNIFICANT BRAIN-BOOSTING BENEFITS.

DON'T "FORGET" THE SIDE SALAD

In a study published in *Neurology* online researchers noted that people who ate one serving of leafy greens per day had brains effectively 11 years younger than their salad-skipping counterparts (2017; doi: 10.1212/WNL.0000000000004815). The study of nearly 1,000 people aged 58–99 took place over a 5-year period and looked at how consumption of leafy greens—whose primary nutrients and bioactives include vitamin K, lutein, kaempferol, folate, beta-carotene, nitrate and alpha–tocopherol—affected cognitive decline.

KIDS WHO EAT MORE FISH MAY SLEEP BETTER.

Better Zzz's
Through Omega-3s

Instead of counting sheep, maybe children should count fish sticks. A cohort study of 541 Chinese schoolchildren aged 9–11 found a positive relationship linking frequent fish consumption (defined as at least one fish serving per week), sleep quality and IQ. The study authors posit that the long-chain omega-3 fatty acids EPA and DHA found in fish explain the results, mentioning the nutrients' role in neural-tissue growth, regulation of melatonin production, and mediation of sleep/wake regulation. The frequent fish eaters also scored 4.8 points higher on full-scale IQ than those who seldom or never ate fish.

The Lowdown on Higher Vitamin D

HOW MUCH IS TOO MUCH?

Within a few months of each other, two papers came out regarding vitamin D. The first, published in *The Journal of Nutrition,* highlighted the benefits of vitamin D. It found that middle-aged participants (aged 40–59) with optimal serum levels of vitamin D also had longer leukocyte telomere length (LTL). LTL shortening is associated with genomic instability and carcinogenesis (2017; 147 [4], 514–20). The second paper, from *The Journal of the American Medical Association,* noted an uptick in the number of people taking potentially toxic amounts of over 4,000 IU per day, nearly 7 times the RDA of 600 IU/d (2017; 317 [23], 2448–50).

Registered nutritional counselor Sharisse Dalby, CHN, RNC, NNCP, of Vancouver, British Columbia, offers these insights to *American Fitness* readers: "While vitamin D is important for bone health and hormone regulation—and may even improve mood or help prevent disease—it can also have some toxic side effects due to its ability to [be stored in] excess within your body's fat cells."

She recommends consulting a healthcare practitioner before taking any supplement, *especially* before taking more than the RDA. "That doesn't mean you can't focus on increasing your vitamin D levels more naturally through sunshine," says Darby. Other safe ways to boost D include enjoying foods high in the nutrient, such as salmon and tuna, as well as vitamin D–fortified foods.

RECIPE:
Blueberry Pecan Oatmeal Griddle Cakes

PHOTO: THERESA GRECO, FOODHUNTERSGUIDE.COM

Law librarian by day, recipe creator by night, Theresa Greco shares this recipe to demonstrate how easy it can be to eat organic foods. Based in Peoria, Arizona, Greco has created recipes for national magazines and for retailers such as Whole Foods Market and Stonyfield Yogurt. Her passion for nonprocessed foods comes through on her website, foodhuntersguide.com.

1½ C organic old-fashioned oats, divided
½ C chopped pecans
1 t cinnamon
1 t baking soda
pinch of salt
1 C fat-free Greek yogurt
1 egg
1 T olive oil
1 t vanilla
½ C organic blueberries

Topping: additional yogurt and organic blueberries (optional)

Recipe used with permission.

Preheat a greased griddle pan over medium heat.

In a food processor, pulse 1 C oats until finely ground and resembling flour. In a mixing bowl, add oat flour, remaining ½ C oats, pecans, cinnamon, baking soda and salt. Stir to combine. In a separate bowl, combine yogurt, egg, oil and vanilla. Mix until well-combined.

Pour wet ingredients into dry ingredients, and mix to incorporate. Fold in blueberries.

Using a ¼ C measuring cup, scoop batter onto preheated griddle pan. Gently flatten batter to resemble patties. Cook for 3–4 minutes, then flip cakes, and cook for another 3–4 minutes.

Cakes are done when both sides are golden-brown and the center is set.

If desired, top with lightly sweetened yogurt and blueberries before serving.

ALEXANDRA WILLIAMS, MA, *works in the exercise science and sport studies department at UC Santa Barbara with a lot of students who need to improve their nutritional intake.*

Sugar Smarts

ADDED SUGARS ARE EVERYWHERE—THREATENING OUR HEALTH IN COUNTLESS WAYS. USE THESE TIPS TO LIMIT YOUR SUGAR INTAKE.

BY MATTHEW KADEY, MS, RD

In America, life is sweet all right: so sweet that for children and adults, respectively, added sugar—sugar that doesn't occur naturally in food—accounted for 14% and 17% of calories consumed in 2009–2012 (Powell, Smith-Taillie & Popkin 2016).

The federal government's 2015–2020 Dietary Guidelines for Americans recommend that we get no more than 10% of our daily calories (about 50 grams, or 12 teaspoons) from added sugar. For a person eating a 2,000-calorie diet, that means fewer than 200 calories from added sugar (most adults eat about 308 sugary calories each day [Powell, Smith-Taillie & Popkin 2016], or about 60 pounds of sugar yearly). While the World Health Organization also suggests striving for a 10% limit, it stresses that 5% (about 25 grams) would be an even better goal (WHO 2015).

There is no way to sugarcoat it: The additive that tastes so good is a likely culprit in our obesity crisis and a range of health woes that go beyond diabetes and tooth decay. Researchers at the Centers for Disease Control and Prevention found that people who got 10%–24% of their calories from added sugar were 30% more likely to die from cardiovascular disease than those who ate less (Yang et al. 2014). Insulin resistance from excessive added sugar is a likely driver of heart disease (DiNicolantonio & O'Keefe 2017). An Oregon State University study discovered that a high-sugar diet can change gut bacteria in ways that might degrade cognitive function (Magnusson et al. 2015). Meanwhile, a recent study in the journal *Nature Communications* found that a high rate of sugar conversion by cancer cells may stimulate the growth of tumors (Peeters et al. 2017).

There's strong evidence that our bodies respond to sugary calories differently than they do to other kinds of calories. Hence, the old saying "A calorie is a calorie" is a fallacy. What's more, processed foods with lots of added sugar can cause blood-sugar spikes and subsequent crashes, says Jessica Murgueytio, RD, a clinical dietitian with Bethesda Medical Associates in Maryland. "[These swings] can make people feel lethargic and crave even more sugar, causing the cycle to continue," she explains.

It doesn't help that sugar lights up our brains' dopamine centers, making us temporarily feel fantastic and ready for another hit. And Murgueytio adds that, at the end of the day, we've consumed a finite number of calories, so the kind of calories we choose matters. If we're trying to lose weight—but consuming excess sugar calories—we're probably crowding out calories from nutrient-dense foods.

MANY FOODS YOU MIGHT NEVER ASSOCIATE WITH BEING SWEET CONTAIN AN ABUNDANCE OF ADDED SUGAR. IT MIGHT SURPRISE YOU TO LEARN WHERE IT LURKS—AND HOW MUCH YOU MIGHT BE CONSUMING.

Yes, each person is different and every diet should be tuned to specific needs. But in general, Murgueytio says, most people could benefit from a less-sugary diet. The pervasiveness of added sugar in our food supply makes it hard to scale back, but it's not impossible.

These tactics can help you and your clients tame a too-sweet tooth:

Read Labels Closely

Sugar is everywhere, in unexpected places. About 75% of packaged foods on store shelves have sweeteners, according to a study in the *Journal of the Academy of Nutrition and Dietetics* (Ng, Slining & Popkin 2012). And people savvy enough to skip pastries, flavored yogurts, soda and other notorious sugar bombs might not realize that sugar is hiding in lots of supermarket foods that are generally healthier for us.

Whole-grain bread, jerky, frozen fruits, nut butter, granola bars, almond milk, deli meats, salad dressings and the tomato sauce you pour over your pasta all have extra sugar. "If these foods are the only sources of added sugar within the day, then it's not too concerning," says Maria Dalzot, RD, a sports dietitian and professional runner. "However, if the day's intake includes additional sweets, then I would consider making the switch to options with no added sugars."

New FDA rules starting in 2020 for large manufacturers and 2021 for smaller companies require Nutrition Facts labels to include a separate line showing how much sugar has been added to the food or drink (some companies have already updated their labels). This will make it easier to spot how much sugar occurs naturally (such as the lactose in yogurt) versus what has been pumped into the product.

Until then, Dalzot says, people can weed out some of the sweet stuff from their diets by judiciously examining ingredient lists for signs of sweeteners. "Once you know where sugar hides, you can start making changes." Looking for labels such as "no added sugar" or "unsweetened" on items like almond milk and applesauce can also be helpful.

"Once you know where sugar hides, you can start making changes."

— Maria Dalzot, RD, sports dietitian

Learn Sugar Synonyms

When you read food labels, look for more than the word "sugar." Added sugars hide behind aliases such as *maltodextrin, evaporated cane juice, brown rice syrup, corn syrup, coconut nectar, barley malt, organic dried cane syrup, dextrose* and *maltose* (basically any word ending in *-ose*). Manufacturers try to disguise sugar with other names that make it sound more wholesome (ahem, *fruit juice concentrate*). Don't let fancy packaging and catch phrases like "natural" or even "organic" fool you. Be sure to flip over the package and examine the ingredient list, word for word, for signs of sugar in all its guises.

Avoid Sweet Soda and Drinks

Sweetened drinks are the biggest source of added-sugar calories in the standard American diet. A 2017 study in the journal *Obesity Facts* reviewed 30 non-industry-funded studies involving 244,651 subjects and found a strong link between sugar-sweetened beverage consumption and obesity among adults and children (EASO 2017).

And there's more heartbreaking news for soda lovers: A review of 36 studies in the *Journal of the Endocrine Society* suggests that regularly quenching your thirst with sugar-sweetened beverages ups your chances of developing metabolic syndrome, a cluster of conditions such as abdominal obesity and elevated blood pressure that raises your risks of heart disease and diabetes (Deshpande, Mapanga & Essop 2017).

Even beverages considered "healthy"—like kombucha, flavored kefir, almond milk, green juices and enhanced waters—can put you in the sugar-intake danger zone. Since fruit juices lack the fiber found in whole fruits, slowing the digestion of natural sugars, most people should go easy on the OJ. "I recommend limiting juice to 4 ounces or less per day," suggests Murgueytio.

"Free" Isn't Free

Be especially wary of products like peanut butter, frozen yogurt and salad dressings

advertised as "reduced-fat" or "fat-free."

"When fat is removed from a product, sugar is usually added as a replacement to improve palatability," Dalzot says. A serving of fat-free, fruit-flavored yogurt can typically have three times more sugar than a serving of 2% plain yogurt. Moral of the story? Opt for whole foods closer to their natural state, even if you get a few more fat calories.

Besides, fat is more satiating than sugar, so it's easier to practice better portion control. "Psychologically speaking, the term 'free' on anything may make someone more likely to overdo it without fear of feeling guilt," notes Dalzot.

Sweat First, Sweet Second

If Krispy Kreme is your guilty pleasure, the best time to satisfy a craving might be after a calorie-crushing workout. "Taking in sugar shortly after a hard workout can help you get a jump-start on the recovery process, as the sugar is efficiently used to restore muscle glycogen stores," says Dalzot. As a stored carbohydrate, glycogen is a major source of energy during intense exercise. Hitting the gym is not a green light for overconsuming sweets, but it gives you a bit of wiggle room.

Prolonged endurance exercise (longer than 60–90 minutes) is another sweet opportunity, Dalzot says, because the body metabolizes sugar from items like gels and sports drinks for a quick source of easily digested energy. Just remember that no amount of training makes someone immune to the pitfalls of eating too much added sugar.

It's All Sugar

Supposedly better-for-you sugars marketed as "more natural" don't live up to the hype.

A study in *The Journal of Nutrition* found that when people ate the same amount (about 2 tablespoons) of honey, sucrose (i.e., white sugar) or much-maligned high-fructose corn syrup every day for 2 weeks, they experienced the same troubling metabolic changes, including increases in blood triglycerides and markers of inflammation—both risk factors for heart problems (Raatz, Johnson & Picklo 2015). Sure, coconut sugar (made by boiling down the sap of coconut palm trees) may have a smattering of nutrients like calcium, but levels are far too low to outweigh the health risks of eating too much sugar. And while maple syrup has antioxidants, you'd likely have to drown your pancakes in it to match the antioxidant levels in fruits and vegetables.

In "less-processed" sugars like demerara and turbinado, the sugar crystals are larger, and some of the original molasses remains. Slightly less nefarious—but hardly nutritional saints. And agave has more fructose than high-fructose corn syrup, so it won't do your liver any favors.

"At the end of the day, sugar is sugar," says Murgueytio. "All forms of sugar should be minimized to promote improvements in health and body composition."

What About Sugar Substitutes?

Low-cal sugar substitutes can be counterproductive. A 2017 study in the *Journal of Academy of Nutrition and Dietetics* noted that use of low-calorie sugar substitutes like stevia, xylitol and Splenda increased by 200% between 1999 and 2012, and about 41% of Americans now use them regularly (Sylvetsky et al. 2017). But these faux sugars may actually worsen our chances of winning the battle of the bulge. In a comprehensive review of the literature, Canadian scientists found a link between frequent intake of nonnutritive sweeteners and weight gain, as well as other health concerns like hypertension and diabetes (Azad et al. 2017).

"Large intakes of these sweeteners may impact insulin sensitivity and alter our taste buds in a way that makes us less sensitive to sweet tastes," says Jessica Murgueytio, RD, of Bethesda Medical Associates in Maryland. "And this could increase sweet cravings (Yang 2010), leading to an increase in the intake of both real and artificial sugars."

Indeed, an investigation published in the *International Journal of Obesity* found that when people consumed drinks sweetened with aspartame, stevia or monk fruit, they simply made up the calorie difference later in the day (Tey et al. 2017). The upshot is that it's best not to fake it. We should still concentrate on eating whole foods.

Avoid Cravings

The next time you're about to give into candy bar temptation, lace up your running shoes. Research shows that simply taking a brisk 15-minute walk can tame cravings for sugary snack foods (Ledochowski et al. 2015). "Exercise can temporarily suppress hunger hormones and alleviate cravings associated with boredom or stress," says Dazlot.

Finally, consider staying fit with friends more often. A 2014 study by Norwegian scientists found that people with stronger social ties tended to drink fewer sugary beverages (Henriksen, Torsheim & Thuen 2014). Feelings of loneliness can bring on bouts of sugar lust.

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Running on Empty: Making a Case for Recovery Training in Runners

RECOVERY REQUIREMENTS FOR EACH OF THE BODY'S PERFORMANCE SYSTEMS DIFFER SLIGHTLY AND ARE AFFECTED BY SUCH VARIABLES AS THE ATHLETE'S WORKOUT INTENSITY, LEVEL OF CONDITIONING, PERFORMANCE GOALS AND BODY COMPOSITION.

LONG-DISTANCE RUNNERS MAY BALK AT ADDING RECOVERY RUNS TO THEIR PROGRAMS, BUT OVERTRAINING IS THE FAST TRACK TO INJURY AND FATIGUE. RECOVERY IS A BIOLOGICAL IMPERATIVE—HERE'S HOW YOUR CLIENTS CAN DO IT RIGHT.

BY CHARLIE HOOLIHAN

Planning and executing a recovery workout is one of the hardest aspects of strength and conditioning programming for any athlete, but even more so for endurance runners. In a sport where running faster, farther and more frequently is a common mantra, the idea of blocking out a few times per week to run a shorter and easier course is often ignored. And even if this method is grudgingly accepted, it may be hindered by poor planning.

However, when athletes challenge the same muscle groups and energy systems 5–6 days per week for several weeks at a time, the result is a *decrease* in the body's ability to adapt to new challenges and improve capacity (see "Making a Case for Recovery," page 67.) In short, failure to allow the body to experience adequate recovery leads to weakness instead of strength, fatigue instead of energy, and illness instead of wellness (Tiidus 2008).

To improve capacity, the key is to overload the energy system and muscle groups you are targeting, and then allow the body to recover to baseline. Recovering fully from a run workout is complex in that it influences all of the major muscle groups of the lower body, as well as all three major systems needed for energy or performance. Interestingly, recovery requirements for each of these systems differ slightly and are affected by such variables as the athlete's workout intensity, level of conditioning, performance goals and body composition.

Performance Systems Affected by Running

Run training typically includes specific workouts to improve the body's ability to convert fuel to energy, improve the body's delivery of oxygen to muscles, and strengthen the muscles to support the body efficiently over long distances. While many systems are involved in this process, the following is a simple overview of running's effect on different systems in the body:

THE CARDIOVASCULAR SYSTEM delivers oxygen to the muscles via the lungs, heart

and vascular network, while also stimulating increased production of oxygen-producing mitochondria for muscles. Postworkout recovery of this system takes 12–24 hours, depending largely on an individual's state of conditioning (Anderson 2013).

THE METABOLIC SYSTEM processes all the fuel sources available to the muscles, such as oxygen, glycogen, lipids and lactate. This system is also responsible for processing the byproducts of muscle damage from workouts, including a buildup of lactate (Janssen 2001; Carmichael & Rutberg 2012). Restoration of the metabolic system to baseline measurements can take 24–96 hours or longer, depending on the workout intensity.

THE NEUROMUSCULOSKELETAL SYSTEM consists of the body's support and propulsion network: muscles, joints, tendons, ligaments, nerves and bones. Strengthening this system can boost overall running efficiency through healthy and stable joint complexes and improved neuromuscular connections. Recovery timing after strength and speed workouts is similar to the timing after workouts that stimulate the metabolic system (24–96 hours) (Anderson 2013; Magness 2014; Janssen 2001).

Three Primary Run Sessions: Key Points

The body's energy systems are challenged by three primary types of run sessions: endurance, tempo and interval. Together, these sessions are designed to improve all three of the systems described above. Because each type of run challenges the body differently, each requires a slightly different recovery protocol.

THE ENDURANCE RUN

The endurance run is a staple of run training. The goal is to cover a distance up to race distance at a pace slightly slower than race pace. This type of run is primarily designed to expand aerobic capacity via several mechanisms in the cardiovascular system. The two most important mechanisms affected are **MITOCHONDRIAL BIOGENESIS (MB)** and **VASOENDOTHELIAL GROWTH FACTOR (VEGF).** MB is the creation of new mitochondria, and VEGF encourages the growth of new blood vessels (Ventura-Clapier, Mettauer & Bigard 2007). Recovery time: 12–48 hours, depending on distance and pace.

Making a Case for Recovery

Many athletes are aware that to improve performance they need hard workouts to challenge homeostasis, which is the internal balance of all the physiological processes at the chemical, molecular and tissue levels. This challenge serves to alert the body that more strength, speed and cardiovascular fitness are needed to survive in a new and more demanding environment. It may seem, at first, as though *more* challenge would naturally result in greater gains, so it may help to give a brief biology lesson to the reluctant recovery runner:

Challenging workouts, of course, result in muscle damage along with a myriad of physiological byproducts similar to those resulting from blunt force trauma, illness or infection. Neutrophils, macrophages, and other inflammation and immune system chemicals are circulated to repair the damage and help the body return to a healthier state (Haussworth & Mujika 2013). After such a challenge, the body needs time to heal.

An adaptive process occurs if the workout is a reasonable challenge relative to the condition of the exerciser and if specific recovery protocols are followed. In these cases, recovery allows inflammatory cytokines and blood lactate levels to decline, while enabling growth and healing factors to increase. Results include new blood vessels, new muscle fibers, neuromuscular pathways and an adapted metabolic chemical response. Simply put, during recovery the body heals, rebuilds and achieves a higher level of conditioning.

CYCLING, STAIR CLIMBING, WATER RUNNING, SWIMMING AND ROWING CAN ALL PROVIDE A CARDIOVASCULAR OR METABOLIC STIMULUS WITHOUT THE INHERENT GROUND-FORCE IMPACT OF RUNNING.

At-a-Glance: Run Type & Recovery Timing

RUN TYPE	DISTANCE/TIME	PACE	GOALS/GAINS	RECOVERY TIME NEEDED
ENDURANCE RUN	up to race distance	slightly slower than race pace	cardiovascular: greater aerobic capacity	12–48 hours
TEMPO RUN	30- to 60-minute run	close to fastest pace	metabolic: improved lactate clearance	24–96 hours or longer
INTERVAL RUN	1- to 10-minute running intervals, alternating with recovery periods	very fast (at or close to fastest pace)	neuromusculoskeletal: greater speed and strength	24–96 hours

THE TEMPO RUN

The tempo run is shorter and faster than the endurance run. It is designed to stimulate the blood lactate clearance mechanism. Running close to our fastest pace for a sustained period of 30–60 minutes produces lactate, which can be cleared from the bloodstream and recycled as fuel—up to a certain amount. If that threshold is exceeded, oxygen transport to the muscles is inhibited, and the runner has to slow down. Training at faster, sustained paces helps the body process more accumulated lactate for fuel during races (Janssen 2001). This highly complex chemical process is centered mainly within the metabolic system. Recovery time: 24–96 hours, or longer.

THE INTERVAL RUN

The interval run is designed to improve speed and strength. It consists of very fast but short (1- to 10-minute) running intervals with a specific amount of recovery time between runs. This pattern creates a physiological challenge that forces the body to develop stronger muscles, tendons and neuromuscular connections. This, in turn, improves running economy, defined as the ability to run at a specific speed using the least amount of oxygen and glycogen (muscle fuel). Recovery time: 24–96 hours.

Tempo and interval runs have the potential to create numerous benefits because they challenge almost all aspects of a runner's performance physiology and have the most overall impact; for these reasons, they also require the most recovery (Janssen 2001).

Once all of these three different and demanding sessions are included in the training week, other slower-paced runs can be interspersed to increase mileage and/or provide recovery from hard training sessions (Anderson 2013).

Additional Determinants of Recovery Protocols

Here are some recovery run guidelines to provide a framework for individual variation. Protocols will be based, in part, on what kind of runner you or your clients are. While there are many variables, two primary examples—individual physiology and personal goals—are considered for the purpose of this analysis.

INDIVIDUAL PHYSIOLOGIES can lean toward primarily slow-twitch, type I endurance muscle fibers; primarily fast-twitch, type II speed and strength muscle fibers; or a combination of both. Fast-twitch-dominant individuals tend to automatically use more stored muscle glycogen than slow-twitch individuals. Because glycogen is a primary source of fuel during endurance efforts, recovery strategies for fast-twitch runners will need to be easier, shorter and more specifically paced. Slow-twitch-dominant athletes can handle more volume during recovery, while blended-fiber athletes fall in between the two recovery strategies (McMillan 2016; Magness 2014).

PERFORMANCE GOALS also differ widely among runners. Professional runners, elite interscholastic competitors and championship-level age-grouper amateurs have training plans with specific mileage goals. Recovery runs for these athletes must focus partially on maintaining a weekly mileage level and partially on returning the runners to homeostasis after hard training. These two purposes require fairly strict adherence to specific

paces and distances in order to minimize demands on energy systems while the body is processing byproducts of challenging workouts.

The same rules apply to casual recreational runners, but these athletes can have quite a bit more leeway with specific mileage goals beyond the three key training runs. For this group, recovery runs are fine, but cross-training with low-impact modalities—like swimming, cycling, rowing or stair climbing—is often recommended to reduce injury risk (Pierce, Murr & Moss 2012).

Cross-training is a great way to recover from running hard miles, enabling the body to stay active without more running-related eccentric muscle contractions (eccentric being the most damaging type). Cycling, stair climbing, water running, swimming and rowing can all provide a cardiovascular or metabolic stimulus without the inherent ground-force impact of running. Some research has indicated cross-training modalities can help maintain and improve overall running fitness (Anderson 2013; Pierce, Murr & Moss 2012).

Note that some runners with championship-level goals also use cross-training activities as part of their recovery, but at present, most coaches and training plans favor running for the majority of a training regimen.

Guidelines for Recovery Running

FOCUS ON MINUTES, NOT MILES

In most cases, the run should be time-based rather than distance-based, to keep mileage goals somewhat out of the equation and to ensure that the run focuses on recovery. The length of time should be around 25%–50% of the time for long endurance runs.

SLOW THE PACE, INCREASE TECHNIQUE

Recovery runs should be easy efforts that create minimal demands on the metabolic system. The goal is to run easily and efficiently enough to use a minimum amount of muscle glycogen as fuel, while avoiding muscle damage and metabolic-system challenges.

Use the talk test to determine how hard a client is working. Being able to talk (or sing) while running indicates that the muscles are getting enough oxygen and lactate production is low.

Sometimes, paces based on race times—in this case 1–3 minutes slower than half-marathon or marathon pace—are recommended. World-ranked Kenyans capable of running marathons at an under-5-minute-per-mile pace sometimes recover at an 8-minute-per-mile pace (Magness 2014).

The pace should be easy and comfortable but with good technique comparable to race pace to promote and maintain long-term running economy. Good technique at any speed is important for maintaining proper long-term mechanics.

Additionally, recovery should be enjoyable. Walking for all or part of the workout is allowed and can qualify as recovery "running," especially in time-based recovery efforts.

> Challenging workouts result in muscle damage along with a myriad of physiological byproducts similar to those resulting from blunt force trauma, illness or infection.

Interval-style running utilizing pickups is also possible. This involves 3- to 5-minute intervals of running that steadily increase to a tempo pace without going into excess lactate production. While pickup intervals may seem counter to the concept of recovery runs, they can be helpful, especially for fast-twitch runners. These intervals are designed to be strong and fast with good technique, but they should end before breathing patterns breach talk-test parameters. Easy running or walking should follow each pickup (Magness 2014).

LISTEN TO PHYSICAL CUES

Your clients need to honor achy muscles and tendons. Pain indicates potential for injury as well as the possibility of increasing rather than decreasing inflammation. If aches and pains fail to dissipate within the first 10–15 minutes of a run, the session should end there. And if pain persists for more than 24 hours after a run session, it's advisable to consult a physician for next steps.

Muscle soreness and damage from previous workouts are a natural part of improving capacity, but they can subtly or overtly alter gait mechanics. These alterations not only affect muscles' ability to generate force at different lengths, angles and speeds; they also reduce dynamic joint stability and shock absorption (Tiidus 2008).

Run, Recover, Repeat

Recovery from hard training is essential to endurance runners. Taking the time to effectively plan workouts and recovery strategies can provide great long-term benefits for your clients. The biggest hurdle may be convincing these dedicated athletes—elite or casual—of the necessity of easing up, slowing down, cutting mileage or cross-training between strenuous training sessions. But it's well worth the effort. As illustrated by this analysis, employing well-conceived recovery strategies can keep burnout and injury at bay while bringing running clients a few steps closer to their goals.

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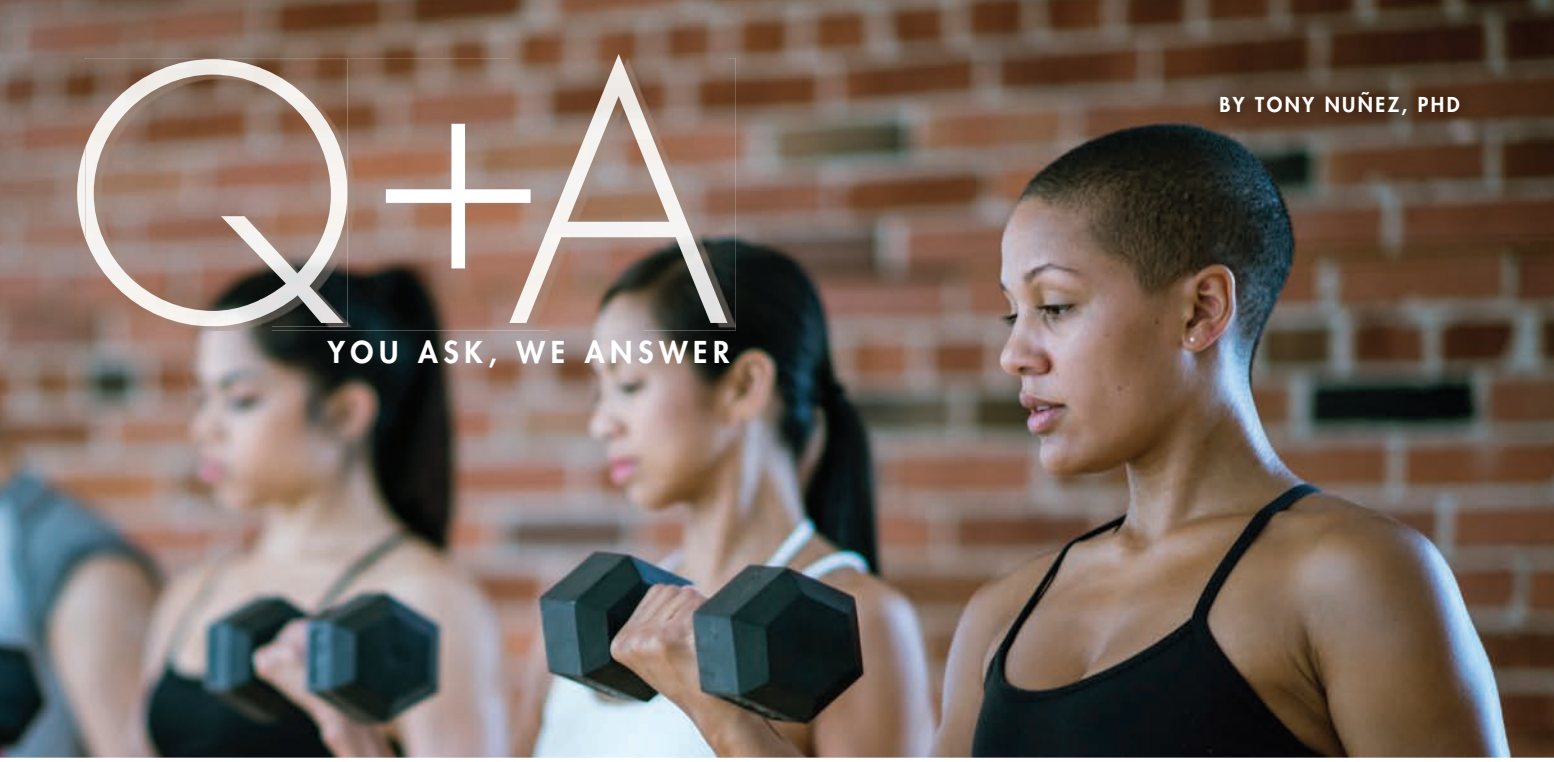
Q+A

YOU ASK, WE ANSWER

BY TONY NUÑEZ, PHD



STUDIES ON WOMEN AND RESISTANCE TRAINING OFFER INSIGHTS ON PROGRAMMING DESIGN.

DO CONCURRENT TRAINING AND WEIGHTLIFTING PRODUCE SIMILAR STRENGTH GAINS IN WOMEN?

Clients often prefer the variety of concurrent training—which combines aerobic and resistance exercises—over strength training on its own. The most popular concurrent training places high-intensity intervals before resistance exercises. The question is whether concurrent-style exercisers see the same strength gains as those who do resistance training alone.

In a 2017 study, researchers worked with 16 women (aged 26–40) split into two groups: concurrent training and resistance training alone. Both groups performed the same resistance training sessions (a full-body superset of two exercises performed back to back using opposing muscle groups). The concurrent group did high-intensity interval training before their resistance sessions.

Results of the 8-week study suggest that the concurrent and resistance-only groups enjoyed similar strength gains, based on 10-RM testing for biceps curls and leg extensions. More research with different populations and muscle mechanistic analyses is needed to affirm the study's results.

REFERENCE: Gentil, P., et al. 2017. High intensity interval training does not impair strength gains in response to resistance training in premenopausal women. *European Journal of Applied Physiology, 117* (6), 1257–65.

DOES SELF-SELECTION OF RESISTANCE LOAD SHOW MERIT?

Many trainers establish a client's one-repetition maximum (1-RM) to estimate appropriate intensity for resistance training. However, research published in 2017 suggests that allowing female clients to self-select their load based on rating of perceived exertion is a workable alternative to using 1-RM.

Researchers recruited 20 women (aged 23 ± 3) who performed three exercise sessions 72 hours apart. In the self-select session, subjects were free to adjust the weight to provide a comfortable yet challenging workout. Their average loads corresponded to 57% of 1-RM.

The researchers concluded that self-selected loads are effective at eliciting a muscular response in trained women and that RPE is an accurate gauge of resistance exercise intensity. Note that previous research has found that women who self-select their resistance loads demonstrate greater intent and self-efficacy than those who rely on imposed loads.

REFERENCE: Cotter, J.A., et al. 2017. Ratings of perceived exertion during acute resistance exercise performed at imposed and self-selected loads in recreationally trained women. *Journal of Strength and Conditioning Research, 31* (8), 2313–18.

CAN WEIGHTLIFTING PLUS DIET BURN FAT AND SAVE MUSCLE?

Can resistance training combined with a caloric deficit burn significant pounds without sacrificing muscle mass?

In 2017, a 16-week study investigated this question with 31 women with obesity (aged 32 ± 5) who were separated into four groups: control, diet only, resistance training (RT) only and RT plus diet. The diet-only and RT-plus-diet groups received individual meal plans based on caloric intake (assessed from resting metabolic rate tests). Both training groups performed the same monthly workouts.

Results demonstrated that all three experimental groups (diet only, RT only and RT plus diet) saw reductions in fat mass—with the RT-plus-diet group losing the most. However, the RT-only group was the one group that achieved significant increases in muscle mass. The study suggests that resistance training paired with caloric restrictions can burn fat and preserve muscle mass, but more research needs to be done with larger sample sizes and different populations.

REFERENCE: Miller, T., et al. 2017. Resistance training combined with diet decreases body fat while preserving lean mass independent of resting metabolic rate: A randomized trial. *International Journal of Sport Nutrition and Exercise Metabolism.* doi:10.1123/ijsnem.2017-0221, epub ahead of print.

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