PERSONAL TRAINING QUARTERLY

PTQ

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Personal Training Quarterly (PTQ) publishes basic educational information for Associate and Professional Members of the NSCA specifically focusing on personal trainers and training enthusiasts. As a quarterly publication, this journal's mission is to publish peer-reviewed articles that provide basic, practical information that is research-based and applicable to personal trainers.

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HOW SOCIAL MEDIA AFFECTS THE LEGAL RIGHTS OF EMPLOYEES

LEMAR MOORE, JD

Let's face it—there is no avoiding social media. At the close of 2016, the number of Facebook© users had grown to 1.86 billion, more than the populations of the United States and China combined. YouTube©, which now reaches more viewers ages 18 to 49 than any single cable network in the United States, reports that 300 hr of video are uploaded to the site every minute. And while the world-famous Louvre museum houses more than 300,000 paintings, users upload over 300 times as many images to Instagram© every day.

Long gone are the days when the impact of online social networks could be avoided, particularly in the commercial context. Today's fitness professionals, like any other service providers who must navigate rapidly-evolving, competitive markets, often weave social media strategies into their business plans. Indeed, for small business owners like those who operate health clubs, online social networks provide cheap and effective channels for attracting new clients, recruiting new employees, and marketing services or products. But while social networking sites can serve as efficient business tools, they can also complicate the legal rights of the entrepreneurs who use them. This is particularly so when it comes to the rights that employees have against their employers, and vice versa. This article will focus on three specific—and perhaps surprising—ways in which social media networks can alter the employment rights of fitness professionals and the gyms they work for.

To illustrate these three employment issues, the following will examine three hypothetical scenarios, all of which are loosely based on actual cases. Together, these examples show just how much a single social networking page can impact employer-employee relationships.

NEGATIVE SPEECH ABOUT AN EMPLOYER

Imagine the following: an enthusiastic personal trainer, who we will call Frank Fitness, has recently been hired by a franchise gym. Shortly after his first day on the new job, Frank befriends four other personal trainers who are also employed there. After getting better acquainted with his fellow trainers over the coming days, he connects with each of them on Facebook.

As the onboarding process continues, Frank becomes increasingly unhappy as he learns the terms and conditions of the new job. He feels especially dissatisfied with the compensation scheme for entry-level trainers, who are told to spend long hours prospecting on the gym floor, oftentimes without pay. Frank complains about this and other policies to management, but is told that these policies will not be changed, and that if he gives it more time, he will adjust. Frustrated, Frank takes to Facebook to air his grievances, and tags his coworkers in negative posts he writes about the gym. "They're taking advantage of us at this place," he writes. "They expect us to do all the work while they take the credit for it, and they pay us next to nothing!" The other trainers, who've harbored similar feelings, "like" each of Frank's posts. Frank also complains about the lack of benefits: "And they don't give us health insurance! What's that about?" Some trainers comment that they agree, and that they too think the gym's practices are unfair.

It does not take long for members of the gym to see Frank's Facebook posts (which are public), and those members become uncomfortable. Some members reach out to the gym's management to express their concern, and some others try to cancel their memberships altogether. A manager at the gym becomes furious, promptly terminates Frank's employment, and cites the gym's employee handbook as the reason why. That handbook, which Frank and the other trainers received during onboarding, explicitly forbids making public comments about the gym that "might be considered inflammatory, disparaging, or otherwise objectionable."

This isn't fair, Frank thinks to himself as he walks out, *I have my rights to free speech!* Is Frank correct? Was it wrong that he was fired for his social media activity?

In short, yes, Frank's intuition is correct. And Frank's employer, by firing him for complaining about the gym's employment practices, has very likely violated federal law. As a general rule, employment relationships in the United States are "at will." That means that a worker's employment can be terminated at any time, for any reason, whether voluntary or involuntarily (1). The employer's freedom to fire an employee at will, in its sole discretion, is restricted only by a limited set of exceptions. Under Title VII, for example, an employer is not allowed to fire an employee because of that employee's race or gender. For our purposes, however, another relevant limitation on an employer's freedom to fire is found in the National Labor Relations Act (or NLRA). The NLRA is a federal statute that allows employees to engage in "concerted activities" for "mutual aid and protection," (2). That means employees can legally congregate to discuss their disagreements with the terms and conditions of their employment, even if that discussion takes place online. To fire an employee because of such discussion is unlawful. In our above example, the employer likely violated the NLRA by terminating Frank's employment because of his Facebook posts. Frank's posts, in which he tagged coworkers and complained about his employer's policies and practices, probably constitute the kind of "concerted activity" that is protected by the NLRA. Moreover, the employee handbook at Frank's gym likely also violates the NLRA, since its social media policy bans what could be protected employee speech (3). As this example illustrates, employers should take caution before issuing social media policies, or discussing social media use with employees. Any such discussions or policies should be screened by an attorney appropriately to ensure compliance with applicable labor laws.

RIGHT TO CONTROL A SOCIAL MEDIA ACCOUNT

Now imagine the following: after walking away from the unpleasant experience at his prior gym, Frank Fitness next lands employment at a smaller, private gym. This gym is a relatively new venture, and the trainers who are hired there have wide latitude to chase their own leads and fix their own schedules. Frank has successfully used social media as a way to attract new clients in the past, so he decides to build a new Instagram page for the purpose of attracting new clients to the gym. On his page, he regularly posts photos and videos promoting the spacious studio, its cutting-edge equipment, and the challenging group exercise classes. He also creates a screen name that reflects his employment at the new gym, and his bio links to the gym's website. Frank's Instagram posts get positive reactions from many of his 17,000 followers, some of whom are potential business partners and sponsors. Following Frank's social media push, new clients do, in fact, begin to show up. Frank and his employer are pleased to see increasing traffic, which eventually reaches critical mass.

After years of working amicably at this private gym, however, Frank decides that he's ready to open his own fitness facility. He thanks his employer for the years of great experience, and resigns. Immediately after leaving, Frank changes the name of his Instagram account, then starts posting photos to draw clients into his own business venture. A large portion of Frank's 17,000 followers subsequently leave the old gym and follow Frank to his new facility. His old employer gets upset by this, seeing it as betrayal. Soon after, Frank receives a letter from his old employer in the mail. The letter asserts that Frank's Instagram account password should be turned over, and that Frank is not entitled to continue using the page. That assertion seemed ridiculous to Frank. *This is my Instagram account*, he thought to himself, *There's no way an ex-employee should ever have to turn over his social media followers to his old boss*. Frank tosses the letter, and ignores it.

Unfortunately for Frank, however, his ex-employer could have a valid legal claim. It has now been established that an employer can, under the right circumstances, assert legal rights to an employee's social media page and followers. In one such case, *PhoneDog v. Kravitz*, an employer sought access to an ex-employee's Twitter© account, which had 17,000 followers. The employee had previously used the Twitter account to attract customers to his then-employer's business. After resigning, however, that employee changed the username associated with his Twitter account and began advertising a new venture. The ex-employer sued, and the court in that case stated that by taking away those 17,000 Twitter followers, the former employee may have unlawfully interfered with his ex-employer's business relationships (4). In another case, a viewer of a popular cable TV show created a fan page on Facebook. After the viewer's fan page gained widespread popularity, the TV show's network entered into an agreement to adopt the fan page as the official one for the show. Following a subsequent fallout between the network and the fan page's creator, however, the network sought exclusive control of the fan page. A federal court agreed that the network was entitled to shut down the viewer's fan page and migrate all of her followers to a page of the network's own creation (5).

Some personal trainers heavily rely on social media pages to brand themselves, and some of those pages have tens of thousands of followers. Employers and employees should take care that no confusion exists regarding ownership of a social media account, and trainers might consider explicitly stating whether their page is personal or professional. In certain circumstances, a trainer's social media page, particularly if it has numerous followers, might be akin to a legally-owned business asset.

USING SOCIAL MEDIA TO SCREEN EMPLOYEES

Next, imagine that Frank resolves the issue with his former employer, and resumes focus on his own business. His studio's membership base is expanding rapidly, and Frank needs to hire additional trainers. He intends to be selective about who he hires, gathering as much information about applicants as he can. He asks each applicant to provide links to their LinkedIn© and Facebook pages as part of the application process. Frank believes that viewing these social media pages will help him get to know the applicants better (rather than reducing them to just their resumes). While viewing one candidate's Facebook page, Frank comes across a picture of the applicant smoking a cigarette. Yuck, Frank thinks to himself, *I don't want cigarettes associated with my gym. I can't hire this applicant.*

In many states, so-called "off-duty laws" protect lawful activities done in an employee's or applicant's personal time (6). Many such laws expressly prohibit negative employment action based on an applicant's tobacco use (7). In certain states, like California for example, it is illegal to even ask for an employee's social media screenname (8). Surprisingly, according to a 2016 survey of hiring managers, 60% of employers regularly engage in such potentially unlawful social media screening (9). Fitness professionals, particularly those in charge of interviewing or hiring personnel, should familiarize themselves with restrictions on applicant screening and ensure compliance with applicable laws.

CONCLUSION

Indeed, social media can be a useful tool for attracting, monitoring, and motivating top talent. Online social networks no longer exclusively serve as leisurely distractions to pass time. In today's digital economy, social media pages serve as important tools to expand a fitness professional's business. Fitness professionals who use social media, however, should decide which function their account is built to serve—personal or professional—and act accordingly when they post.

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SELECTING APPROPRIATE OBJECTIVE ASSESSMENTS BASED ON RESISTANCE TRAINING STATUS AND EXPERIENCE

JONATHAN ANNING, PHD, BROCK JENSEN, PHD, AND CHRISTOPHER LEFEVER, DPT

Fitness professionals generally agree on the value of health screening for persons beginning an exercise program. While exercise is safe for most participants, many screening strategies have been implemented to reduce the likelihood of injury, and possibly death. Initially, risk stratification forms, such as the Physical Activity Readiness Questionnaire (PAR-Q) and American College of Sports Medicine/American Heart Association (ACSM/AHA) questionnaire, were developed to identify individuals with heart disease risk factors (1,2,7,12). While administering these risk stratification forms primarily focused on protecting individuals with poor cardiorespiratory and metabolic health from overexerting themselves during exercise, there was little emphasis placed on common musculoskeletal and neural deficiencies. Currently, there is a Weight Training Readiness Screen (WTRS) available to identify potential musculoskeletal and neural deficiencies, while the Functional Movement Screen™ (FMS™) offers additional lifting technique considerations relative to weaknesses or imbalances in movement patterns (9).

Missing in this approach to maximize a client's safety through comprehensive risk stratification is a simple and objective process of transitioning into resistance training program participation. Traditionally, appropriate assessment selections tend to be more subjective for fitness professionals. Therefore, this article will share an objective strategy to assist the fitness professional in selecting an appropriate assessment method based on a client's resistance training status and experience.

CLIENT NEEDS ANALYSIS

Based on the completion of a comprehensive risk stratification and resistance training background evaluation of a client, research has identified valuable information that will help the fitness professional transition into the assessment phase of program design (3,11). Based on this research, the information needed for the selection of an appropriate resistance training assessment method includes training status, technique experience, and additional risk stratification relationships (3,4,5,10,11). The following provides an example of how this approach was applied to a college population seeking to determine optimal loads for objective assessment of the bench press exercise.

TRAINING STATUS

Resistance training status can be determined using National Strength and Conditioning Association (NSCA) guidelines (8,10). Table 1 identifies the current resistance exercise duration, experience, and intensity classifications identified as valuable considerations in determining a student's training status (3,11). The responses to the questions in Table 1 determined each student's training status.

TECHNIQUE EXPERIENCE

Technique experience is based on previous exposure to the bench press exercise. Since the research took place in an educational setting, the subjects consisted of students from diverse backgrounds enrolled in a college course focused on resistance training instruction (3). Every student had their bench press strength assessed using three different resistance training assessments: bodyweight, multiple repetitions (10RM), and single repetition (1RM) methods (4,5,10). Therefore, exposure to the exercise prior to enrolling in the class established their bench press experience.

RESISTANCE ASSESSMENT METHOD SELECTION (RAMS) MODEL

Along with considering resistance training status and technique experience responses, additional risk stratification relationships were identified as important predictors in the selection of an appropriate resistance training assessment (3,11). Table 2 summarizes all the considerations in selecting an appropriate resistance assessment method.

After the questionnaire responses were assigned a number, a stepwise regression developed the following RAMS model, which calculates a value on a scale from one to three (3):

-.426 + .49 (sex) - .072 (TS) + .185 (INT) + .534 (EXP) + .993 (BPE) - .002 (BW) = RAMS

Based on the calculated score, an appropriate resistance assessment method could be selected objectively. A "1" suggests that a trial and error method be used to emphasize resistance exercise technique prior to determining a load within a repetition goal range. A "2" suggests the utilization of the bodyweight method for the initial load selection. A "3" offers a choice between the multiple and single repetition assessment methods dependent upon training goal considerations combined with benefits and risks associated with each choice. Table 3 provides an interpretation summary based on experience with the bench press exercise and current participation in a training program that exceeds beginner status (3,11).

TABLE 1. RESISTANCE TRAINING STATUS BASED ON CURRENT PARTICIPATION DURATION, EXPERIENCE, AND INTENSITY (8,10)

Resistance Training Duration	*How long have you been following a regular resistance training program?* • None • Less than two months (beginner) • 2 – 12 months (intermediate) • Greater than one year (advanced)
Resistance Training Experience	*What types and how many resistance training exercises can you perform with proper technique?* • None • Minimal (< 10 machine exercises or free weight assistance exercises) • Basic (> 11 free weight and machine core/assistance exercises) • High (> 15 free weight and machine core/assistance exercises with explosive exercises)
Resistance Training Intensity	*How difficult or intense are your resistance training workouts?* • Low (≤ 80% one repetition maximum [1RM] or ≥ 8 repetitions and ≤ 2 sets) • Medium (≤ 85% 1RM or 6 – 12 repetitions and 2 – 6 sets) • High (≥ 85% 1RM or ≤ 6 repetitions and ≥ 2 sets; explosive lifting)

TABLE 2. QUESTION AND RESPONSE CLASSIFICATION SYSTEM FOR RESISTANCE ASSESSMENT METHOD SELECTION (RAMS) MODEL (3,11)

QUESTION (ABBREVIATION)	RESPONSE (NUMBER ASSIGNMENT)
Sex	Male (1) or female (2)
Bodyweight (BW)	Weight (in kg)
Resistance training status (TS)	Beginner (1), intermediate (2), or advanced (3)
Resistance training intensity (INT)	Low (1), medium (2), or high (3)
Resistance training experience (EXP)	None/minimal (1), basic (2), or high (3)
Bench press experience (BPE)	No (1) or yes (2)

TABLE 3. RESISTANCE ASSESSMENT METHOD SELECTION SUMMARY BASED ON TRAINING STATUS AND TECHNIQUE EXPERIENCE (3,11)

	INEXPERIENCED	EXPERIENCED
Untrained	"1" Trial and error method	"2" Bodyweight method
Trained		"3" 10RM method 1RM method

DISCUSSION

The results of this research are limited to a college population and specific exercise, but the generalizability of the findings from this example show how student resistance training backgrounds and experiences can be used to help select assessment methods. Although experience with the bench press was used in this example, these results offer a simplified approach for selecting a resistance training assessment method based on NSCA guidelines (8,10).

CONCLUSION

When referring to the information from risk stratification forms and resistance training background questionnaires, it is often only used for identifying health concerns to ensure safety of a client. However, this article described how a comprehensive risk stratification and resistance training background evaluation can provide valuable information to guide the fitness professional in program design. Furthermore, the selection of an appropriate resistance training assessment method can be simplified into two simple questions:

1. "How long have you currently been resistance training?"
2. "Have you been resistance training with the specific exercise I am about to use to assess your muscular fitness capabilities?"

Based on a client's responses, the fitness professional can have confidence in selecting one of the following assessment methods discussed in this article: trial and error, bodyweight, 10RM, and 1RM. It should be noted that the research referenced in this article only applied to a college population and only included the bench press, so further research on this topic is necessary to be applicable to other populations. While most beginning or new clients will have little to no exposure to exercises like the bench press, this approach is one that can be used to initially evaluate a client's potential assessment readiness before selecting an appropriate method. Nonetheless, once the resistance training assessment method is selected, it is up to the fitness professional to utilize the proper procedures to ensure client safety in the development of an effective program design.

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DEVELOPING YOUR SIMPLE PERSONAL TRAINING MARKETING PLAN

RYAN KETCHUM

There is a formula for attracting more clients into your gym and it can work for you if you commit to following the right steps. This article will explain how to set marketing goals, create a marketing action plan to bring in new clients based on your strengths as a trainer, provide examples of how to implement your marketing plan, and discuss why tracking the success of your plan is important.

TAKING THE FIRST STEP

The first step in this plan is to stop saying, "I'm not a marketer." When you started your personal training career you likely did not know being a good marketer was required to survive. But, you quickly found out that you would need to promote your services and get new clients if you wanted to be able to pay the bills. Developing marketing skills that attract clients to your business does not make you a bad personal trainer or strength coach; these skills allow you to potentially help more people and impact more lives.

DOES MARKETING HAVE TO BE COMPLEX?

You may think that the only way to add clients to your business is a complex marketing funnel that requires you to learn how to build websites, write lengthy email campaigns, and be a social media marketing guru. Nothing could be further from the truth. You can grow your fitness business quickly with lots of different tactics and approaches, many of which are not online. Before we get into the "how," you need to understand what goes into a marketing plan.

MARKETING STRATEGY VS. MARKETING PLANS

A marketing plan is different than a marketing strategy. Your strategy dictates the plan and includes your "core offer" (what you are selling), your "prospect profiles" (to whom you are marketing), and your "local market positioning" (why someone should choose you).

Without determining your strategy, you cannot create the most effective plan. The strategy helps you stay pointed in the right direction, so to speak, and allows you to make decisions on what methods to use and the messaging to use with them. Your marketing plan should be composed of goals, lead acquisition methods, execution, follow-up, and tracking to determine success of the plan. Those five areas make up about 80% of your marketing actions.

GOAL SETTING

Setting goals will be critical to your success. Your marketing goals should be aligned with your financial and growth goals. Typical marketing goals will include adding a certain number of new clients or reaching certain revenue benchmarks. Once you have an idea of your marketing goal, it is important that you set your goals according to the SMART model (1). SMART stands for specific, measurable, action-oriented, relevant, and time-based (1). For example, "grow my client list" or "make more money" does not meet all the criteria of a SMART goal.

These example goals lack measurable outcomes that will allow you to determine if you were successful and do not include a timeframe that you are committed to reaching the goal within. A better way to state those goals would be, "add 10 new clients in the next 60 days," or "make $5,000 per month in gross revenue by October 30." These examples meet all the criteria of a SMART goal.

Goals provide you a great start, but you will also need to create a plan to accomplish them. For instance, if you were going to help a client lose 20 lb, you would create an action plan that ensured their success. They would need to work out three times per week, start changing their eating habits, etc. When setting your marketing and business goals, it is important to identify the outcome and the leading indicators that will set you up for success.

Leading indicators predict a future result. They tell you, "when X happens, then Y should happen." For example, when you get 20 leads, then you should have five clients sign up in the next month. These leading indicators help you evaluate your future progress and make sure that you are not just focused on the result, which you cannot control if you are not doing enough work on the front end.

GETTING MORE LEADS

Marketing is all about attracting the right type of leads to your business. The strategy that you have created allows you to focus on what you are selling, who you are selling it to, and the message that you will use in your marketing. A key to effective marketing is getting your message out to the right people through various marketing channels. You should have online, offline, and internal channels working to bring in leads at all times. Table 1 provides examples of marketing activities for each channel. There are hundreds of lead generation methods that you can use in your business. How do you know which ones to use based on your marketing strengths?

EVALUATE YOUR MARKETING STRENGTHS

Look at your business, your team, and yourself to determine what assets you are able to use in your marketing. Assets are resources you have in your business that will make marketing easier. These assets should play to your strengths and be something you will be motivated to do consistently. Here are some examples of potential strengths:

- Unique ability to network
- Valuable network in your community
- Enjoy public speaking
- Enjoy writing
- Money to spend on marketing
- Technology skills (building web pages)
- Social media following
- Access to email contact lists

Take an inventory of all the assets available to you and include your team members if you have them. Once you have your list, prioritize the top 3 – 5 strongest assets that you plan to leverage through your marketing action plan.

DEVELOP AND IMPLEMENT YOUR MARKETING ACTION PLAN

Your marketing plan should utilize your strongest assets to allow you to create an array of effective resources that attract leads and move them along your marketing funnel into your business. As an example, you may select public speaking, paid social media advertising, and a referral rewards program as your strongest marketing channels.

The next step is setting up your daily, weekly, and monthly marketing activities. Public speaking will require that you either run your own events or get an organization to book you for a speaking opportunity. To accomplish your marketing goals, it is important that you are doing the work on the front to set up your opportunities.

TABLE 1. EXAMPLES OF MARKETING CHANNELS

ONLINE	OFFLINE	INTERNAL
Social media posts	Joint ventures	Referral rewards program
Paid marketing (i.e., Facebook© ads)	Networking	Point of sale referrals
Email marketing	Direct mail	Referral contests
Search engine optimization	Workshops/seminars	Bring a friend days/weeks
Review site ratings	Charity events	Family/group programs
YouTube©	Public relations/media	Testimonials
Blogging	Yard signs	
	Radio/TV advertising	

Each day you may reach out to five organizations, groups, or individuals to set up public speaking engagements. The goal of those outreaches would be to set up one speaking opportunity each week outside of the facility (could vary based on goals). You could also set up one public speaking event on your own at the gym or another location that you will promote. Examples of this would be hosting a nutrition seminar in your gym or doing a 60-min presentation on weight training for busy parents. During each of your speaking events, the goal should be to acquire the contact information of each attendee. This can be done by offering an "ethical bribe" such as a free download you will send them or a complimentary consultation.

Social media advertising can be used to promote special offers or to collect email opt-ins in exchange for an offering, such as a three-part video course you set up on your website. To effectively run your social media advertising, you would need to set a daily budget (such as $10), narrow your advertising focus to fit your target market, run your ads, and then track your statistics. The goal is to make a positive return on your investment per new client gained from this channel.

Finally, your referral rewards program can be set up to incentivize your current clients to refer friends and family. Start by creating a standard reward that you will provide for any client that sends you a referral. This could be $50, a gift card, or a simple thank you note. The monetary value is not as important as acknowledging and thanking your clients for their help.

Once your reward is set, create an easy way for your clients to refer their friends and family, such as a referral sheet, where the client can write down names and contact info of those they want to refer, or gift cards to try out a few sessions. Make it clear how your clients should refer clients to you as this step is critical to the success of a referral program.

You are now ready to promote your referral program. Inform your clients via social media, email newsletters, and in their training sessions of the referral program and explain that referrals are the biggest compliment they could give you as a trainer. As you receive referrals, you can take pictures of you delivering the rewards and thanking the client(s) to post on social media (be sure to acquire permission to display photos of each client before posting to social media channels or using in other form of marketing), to hang up in the facility, or to use in other forms of marketing.

THE FOLLOW-UP

Most fitness professionals stop their marketing efforts after they get a lead's information. As you develop your marketing skills, you will start attracting more leads that are not quite ready to buy. They may request a little information, join your newsletter list, or show up for a workshop.

The fact that they are not immediately ready to join does not mean that they will never be ready. It also does not mean they are bad leads, tire kickers, or lazy. You simply have not built up enough value and trust with them yet. Over time, as you provide more information and engage in conversations, it is more likely they will be ready to buy.

Putting a simple follow-up process in place will benefit your marketing greatly. You are spending valuable time, energy, and even money on leads. You might as well make the most of each one. Mix in email, phone calls, and texts to your follow-up process. While a lot of following up can be automated, do not rely on it solely. Pick up the phone and call or text leads as you get them. It can be helpful to document a simple 3 – 4 step follow-up process and add it to your marketing plan.

MEASURING YOUR SUCCESS

Marketing can be a lot of work. If you are going to invest that time, energy, and money into your business, then you need to know if it is working. You need to be tracking the marketing plan for your business. Without tracking, you are simply guessing. Tracking helps you figure out what is working, identify where to best invest your time and money, and determine if you are on track to hit your goals or not.

To measure the success of a marketing plan, start by tracking the four sales and marketing pillars: leads, new front-end offer clients, new clients, and retention. Do not worry about tracking specific activities until you are tracking these pillars. Once you have gotten the basics down, you can start tracking things like conversion percentages, revenue added, lead channel performance, etc.

CONCLUSION

There are many benefits to having a great marketing plan, such as growth in your revenue, less stress trying to grow your business, acquisition of better clients, and saving valuable time. It can help lead to the end of being frustrated because you did not hit your new revenue goals. You can stop being frustrated that your marketing is not working, and instead start focusing on finding ways to optimize it.

It is equivalent to the difference in having your clients follow a training and nutrition plan to hit their fitness goals, as opposed to having your clients do random workouts and not following a nutrition protocol, and wonder why they do not reach their fitness goals. Their chances of success increase greatly when they have a plan to follow. You do not leave your clients' success to chance, so why would you leave your business growth to chance?

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EFFECTS OF EXERCISE ON HYPERTENSION—PART 3

CARMINE GRIECO, PHD, CSCS, AND MIKE REEDER, DO

PREFACE

This article is the third in a four-part series that will explore the impact of exercise on a variety of diseases and conditions. Fitness professionals generally understand the positive effect exercise has on health and human performance. Despite the efficacy of exercise as both a preventive measure and treatment for so many diseases and conditions, standard medical interventions (notably medications) remain the "go-to" medical option for most individuals. In fact, recent estimates by the National Center for Health Statistics suggest that nearly 50% of the United States population have used a prescription drug within the last 30 days (22). Therefore, the aim of this article series is to provide a context for understanding the efficacy of exercise as adjunct therapy and compare this to commonly prescribed treatments.

Hypertension, more commonly known as high blood pressure, or the "silent killer," is pervasive in the United States and represents a major public health problem. It is the most prevalent and preventable cardiovascular risk factor and one of the most expensive to the healthcare system (21). The Centers for Disease Control and Prevention (CDC) estimates that nearly one out of every three adults in the United States have hypertension (7). African Americans are substantially more likely to have hypertension, with rates at 45.7% and 43%, for females and males, respectively (3). Importantly though, only about 80% of hypertensive adults are aware of their condition and, of those, only 48% achieve adequate control (30).

Hypertension is defined as having a resting systolic blood pressure (SBP) of ≥ 140 mmHg, a diastolic blood pressure (DBP) of ≥ 90 mmHg, or taking antihypertensive medication (2). Table 1 shows how hypertension is further classified according to severity (3). High blood pressure (BP) levels are associated with a diversity of negative health outcomes, including an increased risk of stroke and cardiovascular disease (15,31). However, high BP is also a significant risk factor for myocardial infarction, renal disease, peripheral artery disease, heart failure, reductions in brain volume and Alzheimer's disease (4,29). High BP, as a primary contributing cause, has led to approximately 360,000 deaths in the United States annually, or nearly 1,000 per day (7,21).

While the primary treatment for hypertension relies on medication, there are several non-pharmacological strategies, such as weight loss, sodium restriction, biofeedback, and guided breathing exercises (6). However, of the non-pharmacological treatments, exercise (both aerobic and dynamic resistance) has the most evidence of efficacy (6). Regular exercise is an essential modifiable determinant of hypertension. Therefore, strategies to increase physical activity are needed to decrease hypertension's burden (10).

TABLE 1. BLOOD PRESSURE STAGES FOR ADULTS (3)

	SYSTOLIC BLOOD PRESSURE	DIASTOLIC BLOOD PRESSURE
Normal Blood Pressure	< 120 mmHg	< 80 mmHg
Prehypertension	120 – 139 mmHg	80 – 89 mmHg
Stage I Hypertension	140 – 159 mmHg	90 – 99 mmHg
Stage II Hypertension	> 160 mmHg	> 100 mmHg
Hypertensive Crisis	> 180 mmHg	> 110 mmHg

AEROBIC EXERCISE

Lifestyle interventions are important in treating hypertension, as they have few side effects, are inexpensive, and can improve other cardiovascular disease (CVD) risk factors. Regular exercise, especially aerobic exercise, has been shown to decrease arterial stiffness and improve BP in hypertensive patients (23,26). Aerobic exercise has been shown to be effective in both prevention and treatment of hypertension by lowering BP and decreasing the progression from prehypertension to hypertension (25,32). Meta-analyses looking at the effects of exercise on BP conclude that aerobic exercise lowers both SBP and DBP by 4 – 7 mmHg, a decline which is similar to the decrease noted with first-line anti-hypertensive medications (25,27,33).

The normal immediate response to aerobic exercise is a mild increase in SBP with no change or a slight decrease in DBP from decreased peripheral vascular resistance (18). The effects of regular exercise that contributes to a decrease in BP include the following: decrease in heart rate, decrease in systemic vascular resistance, increase in arterial compliance, decrease in sympathetic input, and increase in nitric oxide availability (32). Conversely an abnormal BP response during aerobic exercise would be a significant drop in SBP or failure of SBP to increase with increasing load (2).

Aerobic exercise exerts both an acute and chronic effect on BP. Acutely, a powerful physiological effect of aerobic exercise is post exercise hypotension (PEH). With PEH, the exerciser experiences an immediate decrease in BP of 5 – 7 mmHg with exercise bouts lasting 10 – 60 min at intensities from 40 – 100% of maximum oxygen consumption (27). Multiple studies have shown this decrease in BP may last as long as 24 hr (24,28). This exercise-mediated reduction in BP is especially helpful during the day when BP is typically the most elevated (25). The chronic changes from regular exercise include reduced resting BP and decreased arterial stiffness. In addition, there is a decrease in a multitude of other cardiovascular risk factors and diseases, such as obesity, metabolic syndrome, diabetes, peripheral artery disease, myocardial infarction, and decreased mortality (1,23).

Aerobic exercise prescription should be individualized using the frequency, intensity, time, and type (FITT) principle. The level of medical screening prior to the exercise prescription will depend on the intensity of the exercises planned, as well as the individual's overall cardiovascular risk and exercise history. Patients with other cardiovascular risk factors and/or stage 2 hypertension need more intensive screening prior to moderate-intensity (40 – 60% VO_2max, 3 – 6 METs, or walking at a moderate pace) exercise, but not for light activity (< 40% VO_2max, METs < 3, or a slow walk). Absolute contraindications include recent myocardial infarction, heart block, heart failure, and other cardiovascular events (13).

Frequency: The majority of professional medical societies, such as the American Heart Association (AHA), recommend exercise on most, if not every day of the week, which is important given the impact of the PEH phenomenon (6,25).

Intensity: Published guidelines recommend adults with hypertension engage in moderate-intensity exercise (40 – 60% of VO_2max or heart rate reserve) (19,25). Interestingly, some evidence also supports high-intensity interval training (HIIT) as an exercise modality. HIIT consists of periods of brief, high-intensity aerobic exercise separated by recovery periods. Several studies have shown the antihypertensive benefit of HIIT over continuous moderate-intensity exercise and the impact on cardiovascular risk factors, including hypertension (11,20). However, studies that are more recent have urged caution until further research has been completed (19,27).

Time: The general consensus is that at least 30 min a day with at least 150 min per week of aerobic exercise is appropriate for hypertensive patients. Research has suggested that exercise can be accumulated in a single bout or several accumulated episodes among adults with hypertension and still be effective in reducing BP (26). For exercise adherence, short bouts of aerobic exercise during the day may be an important strategy for hypertensive patients (27).

Type: Many beneficial aerobic exercise modes are available, such as walking, running, swimming, and biking. Exercise adherence is an important factor in selecting the specific type of exercise.

RESISTANCE TRAINING AND HYPERTENSION

Normal BP response to exercise differs between aerobic and resistance training. While aerobic training elicits an intensity-dependent increase in SBP and a negligible effect on DBP, a normal response to dynamic resistance training can significantly increase both SBP and DBP. Moreover, those with hypertension may experience greater increases in SBP during exercise than normotensive individuals (9).

One study compared BP response to resistance exercise between normotensive and hypertensive individuals (9). The authors compared low- and high-intensity resistance exercise, using seated knee extension, on intra-arterial pressure, during work and rest periods (9). Both normotensive and hypertensive individuals experienced substantial increases during low- and high-intensity training, but the hypertensive group was significantly higher with both low-intensity (SBP 227 versus 179 mmHg) and high-intensity programs (SBP 215 versus 176 mmHg) (9). Moreover, while the normotensive group's SBP returned to baseline values during the rest period of low-intensity exercise, the hypertensive group remained elevated. Interestingly, the greatest increase in BP for both groups occurred during the low-intensity exercise, which is likely a product of maximal effort with minimal rest between sets.

Currently, substantial evidence links aerobic training with both acute and chronic reductions in BP. However, evidence supporting resistance training as a therapeutic modality is not as robust as that for aerobic training. One major reason may be the relative dearth of studies on resistance training used as a treatment for hypertensive populations (28). Nevertheless, the American College of Sports Medicine's (ACSM) Position Stand on Exercise and Hypertension recommends resistance training as "an important component of a well-rounded exercise program" for the treatment

of hypertension (25). However, the ACSM recommends aerobic exercise as the primary modality, with resistance training to "serve as an adjunct" modality (25). Likewise, the AHA's statement on alternative approaches to lowering BP recommends resistance training, stating that "the overall evidence suggests that dynamic resistance exercise can lower arterial BP by a modest degree," (11). The AHA also cites the relative lack of large scale studies and goes on to conclude, "it is conceivable that resistance exercise may merit even stronger recommendations in the future," (6).

A recent meta-analysis by MacDonald et al. helps to illustrate this issue (17). Using data from 71 interventions (in 64 published studies), the authors found a relatively modest reduction in BP (2 – 3 mmHg) attributed to moderate-intensity resistance training. There was, however, a notable difference in effect when accounting for study population. Studies using hypertensive populations saw a substantially larger reduction in SBP and DBP than studies with normotensive populations (6/5 versus 0/1 mmHg), indicating hypertensive populations may benefit more from exercise training than normotensive populations.

The ACSM as well as the AHA recommend resistance training for adults with hypertension. Current exercise guidelines for resistance training, from the ACSM, include (2):

Frequency: 2 – 3 time per week.

Intensity: 60 – 70% of 1RM (may progress to 80%). Older individuals or novice lifters should begin with 40 – 50% of 1RM.

Time: 2 – 4 sets of 8 – 12 repetitions for major muscle groups.

Type: Resistance machines, free weights, and bodyweight exercises. While more research into the independent effect of resistance training on BP is warranted, particularly in hypertensive populations, clearly this form of training is efficacious.

PHARMACOLOGICAL TREATMENT OF HYPERTENSION

Practice guidelines established by the Eighth Joint National Committee (JNC-8) recommend pharmacological treatment of high BP in adults < 60 years begin when SBP ≥ 140 mmHg and/or DBP ≥ 90 mmHg (for adults > 60 years the threshold of SBP is 150 mmHg) (14). Lifestyle changes (e.g., exercise, dietary change, weight loss, and smoking cessation) are first-line treatments and should continue throughout the treatment plan.

Effectiveness of antihypertensive drug therapy is similar across all four drug classes. For example, a meta-analysis comparing the effectiveness of antihypertensive drugs stated, "there were small, clinically insignificant differences in BP reductions between the monotherapy classes," (5). Another meta-analysis, which compared the effectiveness of antihypertensive drugs in prevention of cardiovascular disease, concluded, "we find limited evidence of important differences between the various drug-classes," (12).

While it is beyond the scope of this article to evaluate the myriad combinations of antihypertensive drugs and their combined effect on BP reduction, the following is a point of comparison to evaluate the effectiveness of drug therapy in relation to exercise therapy as a form of treatment for hypertension. A recent meta-analysis found a risk-adjusted average reduction in SBP of 13.6 and DBP of 7.9 mmHg while using drug monotherapy (5). Combination therapy (i.e., using more than one drug), as either fixed-dose combination (i.e., combining two active agents into a single pill) or free-equivalent combination (i.e., prescribing two or more active agents), performed slightly better (5). This resulted in a risk-adjusted reduction in SBP of 17.3 and 12.0 mmHg, respectively, with the risk-adjusted reduction in DBP of 10.1 and 6.0 mmHg, respectively (5).

CONCLUSION

Hypertension is a major public health concern, affecting nearly one out of every three adults in the United States (7). Reductions in BP are strongly associated with a decrease in vascular disease risk. In fact, it is estimated that a SBP reduction of only 10 mmHg or a DBP reduction of 5 mmHg would result in 40% lower risk of death from stroke and 30% lower risk of death from ischemic heart disease (16). Indeed, even a modest reduction in BP translates into a clinically meaningful risk reduction in vascular events, such as stroke and ischemic heart disease (9,25).

Lifestyle modification, including exercise, is important for both preventing and treating hypertension. More recent guidelines for treating hypertension have increased emphasis on lifestyle factors, such as exercise. Exercise, particularly aerobic exercise, compares favorably to antihypertensive drug therapy, reducing BP by 5 – 7 mmHg. While further research into the effect of resistance training on BP is necessary, especially in hypertensive populations, recent work suggests that this form of training is efficacious and safe (13). Current guidelines from the ACSM provide a framework for fitness professionals to create an individualized exercise prescription. Exercise training should be an essential component of treatment recommendations for the hypertensive patient. As fitness professionals, it is important to educate and encourage clients with hypertension on the importance of exercise in their overall health.

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CONTINUOUS QUALITY IMPROVEMENT TO ENSURE PERSONAL TRAINING SCOPE OF PRACTICE

DAN MIKESKA, DHSC

The growing prevalence of preventable chronic disease in the United States and worldwide is alarming. Because of this trend, many certified personal trainers (CPTs) are faced with the options of working with clients with medical conditions outside their scope of practice or turning away business. Client expectations often differ from the services a CPT can ethically offer that may lead to litigation, loss of reputation and trust, and loss of clients due to injury (1). However, quality improvement tools, tracking certain metrics, and adjusting processes, can protect all interested parties.

BACKGROUND

In the United States, 50% of adults suffer from at least one chronic disease, and almost 70% of deaths in the United States, and 60% of deaths worldwide, can be attributed to chronic disease (3,13). A chronic disease, or non-communicable disease, which is not passed from one person to the next, is long in duration and slow in progression, and includes heart disease, strokes, respiratory disease, diabetes, arthritis, obesity, and cancer (3,14). Worldwide, the four most prevalent chronic diseases are cardiovascular diseases, which include heart attacks and strokes, cancers, chronic respiratory diseases (to include chronic obstructed pulmonary disease and asthma), and diabetes (13). In the United States, 48% of deaths can be attributed to heart disease and cancer, and almost 78 million people are obese (3).

HEALTH VERSUS WELLNESS

Health and wellness are terms which are often used interchangeably. Health factors are determined by genetics and age, and are beyond control. Wellness factors, or health-risk behaviors, are determined by individual decisions to eat healthy, exercise, and perform other acts that will promote well-being (4). Physical inactivity is a negative wellness factor associated with chronic disease. Conversely, exercise, a positive wellness factor, has been demonstrated as an effective measure in primary, secondary, and tertiary prevention against chronic disease (8). The current guidelines for cardiovascular exercise include 30 min of cardiorespiratory training five days per week, or 150 min weekly. Muscular strength exercises should be performed 2 – 3 days per week, and flexibility exercises should be performed at least twice a week (5). However, more than half of the adult population of the United States does not meet the guidelines for cardiovascular exercise, and more than 75% do not meet the recommended guideline for strength training exercise (3).

CHRONIC DISEASE AND PERSONAL TRAINING

Because of the deleterious effects of chronic disease, and the importance of regular exercise, over 8 million people use a CPT (7). Accordingly, CPTs who work with clients with a chronic condition need to be well-versed in how exercise affects chronic disease. Yet, because personal trainers are not required to obtain licensure, certification standards are self-imposed and often ambiguous (6). Regardless, a basic personal training certification suggests a holder can work with apparently healthy individuals. Consequently, CPTs with a basic certification would be offering services outside their scope of practice if hired by a client with a chronic disease (10). Furthermore, based on the prevalence of chronic disease, many CPTs are technically ineligible to work with

a majority of the adult population of the United States; however, a large percentage of surveyed CPTs indicate they have worked with clients who had one or more chronic condition (11).

CUSTOMERS AND STAKEHOLDERS

There has been an increase in clients injured performing exercises beyond their ability that were recommended by unqualified trainers (1). Accordingly, the widespread problem of CPTs working outside the scope of practice should concern fitness facilities, owners and managers, certifying organizations who have CPTs misrepresenting their brands, and the public who may incur or exacerbate chronic conditions. If a client becomes injured due to an exercise recommended by a trainer, the reputation of the trainer and the facility can be irreparably damaged. Additionally, if a trainer holds a CPT certification but has a client performing exercises usually reserved for a physical therapist or medical fitness specialist, and the client incurs an injury, guilt by association can damage the reputation of the certifying organization as well as the facility.

QUALITY IMPROVEMENT

To address and mitigate concerns of CPTs working outside the scope of practice, and to retain or regain as many clients as possible, customers and their expectation of service needs to be identified, and a system to improve service and measure success needs to be implemented (12). The following outline is an example of how a process can be determined.

1. Who are the customers and stakeholders?
    a. Clients
    b. Facility owners
    c. Certifying organizations

2. What do they expect?
    a. Clients expect safe and effective workouts
    b. Fitness managers and facility owners expect more training sessions
    c. Certifying organizations expect their CPTs to effectively represent the organization's code of ethics

3. How can we improve service?
    a. Provide each client with detailed scope of practice that outlines the services a CPT is qualified to offer
    b. New client assessments
        i. Performance readiness questionnaire (PAR-Q)
        ii. Health history
        iii. Movement assessment
    c. Set up a network of referral clinicians and providers and refer out when an issue outside of the scope of practice for a CPT arises

4. How can we measure success?
    a. Number of session trained
    b. Number of new referrals
    c. Number of clients referred to clinicians
    d. Number of return clients after being referred to a clinician

THE METRICS

According to Mauboussin, although the ultimate measurement of business success is revenue, the pathway to achieve profit is found in incremental steps based on a clear objective, the cause and effect of the presumed drivers, and the application of employee actions to achieve the measureable objective (9). The measureable objective for personal training is the number of training sessions. To achieve this, it is important to measure at what point in the assessment or training process a client is referred to a clinician, or no longer desires services. If a majority of clients are referred out in the introduction and assessment process, an examination of how new clients are recruited should be considered. If clients are being referred out after a number of training sessions, training protocols and assessment tools need to be examined, and perhaps revised. Additionally, to measure the trust of the clients and the referral network, it is also important to know how many clients return after clinical intervention.

CHECK SHEETS

Sollecito and Johnson outlined a number of quality improvement tools including flow diagrams, cause-and-effect diagrams, Pareto diagrams, check sheets, and frequency plots (12). Depending on the need, the chosen tool can be simple or very complex, and can determine how effective a process is by identifying gaps and opportunities (12). A check sheet is a simple tool for collecting data on a process, and can be completed at the time of client engagement (2). Not to be confused with a checklist that is used as a safety tool to ensure a process has been followed, a check sheet records events or problems as they occur, with the objective of identifying frequency, patterns, and process deficits (12). One weakness of check sheets is the prolonged period needed to collect data. Additionally, data may be recorded by an uninvolved party, making reliability questionable. Nonetheless, a check sheet can be easily implemented and revised, and will provide continuous data.

After the process for an introduction and assessment has been implemented, based on the criteria listed to improve service, a check sheet can be developed to provide a simple means to determine at what point in the process clients leave such as an exacerbated condition and referred to a specialist, not meeting goals, or personal reasons. The items used for the check sheet will be the results of a client's goals, health history, and movement assessment (Table 1), and a second check sheet will be used to determine why clients leave after the initial introduction and assessment (Table 2). Items for the second check sheet will indicate how long a client has been involved with a CPT, the phase of training, the mode of exercise, and the equipment used. The check sheets, as well as the introduction and assessment process, should be reviewed and updated as improvements are made. The metrics examined are important to determine if new clients with conditions or limitations beyond a CPT's scope of practice are accepted, and to determine if a CPT is working outside the scope of practice after a client begins an exercise program.

TABLE 1. CHECK SHEET FOR CLIENT DROP-OUT

REASON/POINT OF DROP OUT	DAY OF WEEK						
	SUN	MON	TUES	WED	THU	FRI	SAT
Referral							
Current client							
Repeat client							
Network affiliate							
Scope of practice outline							
Assessment							
Goals (can we provide expertise)							
Weight loss							
Shaping and toning							
Weight gain							
Build muscle							
Gain strength							
General health							
Nutrition							
Medically related							
PAR-Q							
Advised by a physician to avoid exercise							
Require medical supervision							
Faint or dizzy							
Heart disease or chest pain							
High blood pressure or cholesterol							
Bone or joint problems							
Sedentary lifestyle							
Smoke							
Conditions							
Anemia							
Allergies							
Diabetes or hypoglycemia							
Asthma or respiratory issues							
Back pain or orthopedic issues							
Pregnant							
Chronic fatigue							
Epilepsy							
Movement assessment							
Pain							
Unusual dysfunction							
Doctors approval to exercise							

TABLE 2. CURRENT CLIENT POINT OF INJURY OR REASON FOR DROP-OUT

POINT OF DEPARTURE	DAY OF WEEK						
	SUN	MON	TUE	WED	THU	FRI	SAT
Length of training							
1 – 4 weeks							
2 – 6 months							
6 months – 1 year							
> 1 year							
Phase							
Stability							
Endurance							
Strength							
Power							
Mode/type of equipment							
Bodyweight							
Free weight							
Machine							
Cardio equipment							
Suspension training							
Plyo box							
Stability							
Client referred to clinician							

CONCLUSION

With the pervasiveness of chronic disease, CPTs need to be vigilant in their efforts to gain new clients and retain current clients, while maintaining the scope of practice boundaries afforded by their certifications. By reviewing the needs and expectations of customers and stakeholders, a process for improving service can be developed. Check sheets, based on an implemented service process, will provide fitness managers and personal training facility owners quantitative data that measures client attrition due to medical conditions or injury. Additionally, data on referrals, to and from clinicians, can provide a measurement of the level of trust in a CPT's ability and offered services. The facility, the certifying organizations, the trainers, and the clients will benefit from a review of the introduction and assessment process, as well as attrition data provided by these check sheets.

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TRAINING CONSIDERATIONS FOR SWIMMING IN OLDER ADULTS

AMANDA GARCIA, BERENIZE GARCIA, DEAHNA RAE GARCIA, AND ERIKA GARCIA

INTRODUCTION

As we get older, the body naturally regresses until we decide to try and slow the process down through exercising. At a young age, it seems that there are no obstacles when it comes to being active. The challenges of chronic diseases and injuries do not seem to cross one's mind as those individuals are at an athletic peak. Thus, older adults are more likely to face the challenges and obstacles of chronic disease and injury. These challenges contribute to a more sedentary lifestyle as the older adult is not just defined by chronological age, but by the functional limitations they place on themselves out of fear. Physical activity and exercise is important for the prevention of disease and injury for older individuals. Substituting sitting time for physical activity, which can be as simple as standing or walking can improve cardiovascular health (9). Older adults require the proper education to guide them in obtaining proper functional motion and strength. Choosing which type of physical activity to perform when attempting to achieve a healthier lifestyle can be challenging. This is especially true with the wide variety of available exercise modalities. Swimming is a form of exercise that has minimal impact on body joints as it applies a lower amount of stress compared to other popular activities, such as walking. That stress on the body, which could lead to injury in the long term, contributes to reduced risk of disease (21). The purpose of this article is to offer different methods of swimming that improve overall health aimed for the maturing adult.

DETRIMENTS OF AGING

The aging process consists of development followed by deterioration and occurs uniquely for each individual. Aging is associated with reduced cardiovascular fitness, muscular strength and endurance, flexibility, and muscle mass. Older adults who do not engage in physical activity may develop health risks such as obesity, diabetes, cardiovascular disease (CVD), muscle weakness, and poor mental health (22). Degenerative processes or overuse of muscle and bones can be debilitative (12,17).

Older adults may lack the confidence to exercise if they have a present injury (22). Back pain and increased stiffness leads to a loss of motion and strength in the lower extremities and can be exacerbated by years of sedentary work (e.g., clerical jobs) (3,9,11,12,17,22). The individual's occupation can consist of the same repetitive movements, which can be detrimental when done for a large portion of their lifetime (12). For example, as a clerical employee, the hours are consistent with an "eight-to-five" job, five days out of the week. Thus, the employee is in a sitting position all day at a desk for 160 hr a month.

EXERCISE MODALITIES

Walking is one of the most popular activities to start implementing into a less than active lifestyle. Despite the positive impact on the cardiovascular system, walking may place more stress on lower extremities than what can be handled, sometimes causing injuries, especially in the knees and ankles. Experiencing injuries can lead to a lack of interest, which then usually causes the newly active person to desire walking less and less. Older adult sports or fitness classes can serve to keep the individual motivated while providing a fun environment, but when thinking about group activities the individual is expected and challenged to go at the pace of the group. In this scenario, a person can overcompensate while trying to "keep up" and can end up injuring themselves or worsening an existing complication. On the other hand, swimming contributes to health benefits with little to no negative effects. A common type of swimming activity is water aerobics, which has unfortunately become a stereotypical exercise for older adults exclusively.

SWIMMING—A VIABLE OPTION FOR THE OLDER FITNESS ENTHUSIAST

As a closer look will be taken on swimming, it is important to know the complications that older adults may face, which can impact their ability to execute any type of physical conditioning. Every year, 26% of deaths in the United Stated are related to CVD; other issues such as diabetes, hypertension, and obesity trail closely behind (3,4,13). One of the advantages of utilizing swimming as the main type of aerobic exercise for an older adult is that it introduces a safe environment by placing a nominal amount of resistance on the body (6,9,11). Joints are a prime concern when performing any physical activity. The buoyancy of the water provides less strain by submerging a majority of the body underwater. This produces a feeling of lower intensity on the body during swimming exercise, which may in turn lead to a longer workout.

It is recommended that at least 30 min of moderate exercise a day is performed over one or multiple sessions adding up to a total of 150 min minimum for the week (2,3,20). There is a dose-response relationship, meaning that more aerobic exercise is beneficial when trying to prevent the onset of CVD.

There are various movements that can be performed both in and out of the water. These adaptable exercises allow individuals to have more room for progression, or they can utilize a pool for resistance training. This can be the first step before attempting higher levels of exercise out of the water. For example, biceps curls can be interchangeable between environments to better suit the individual's level of fitness. In comparison to implementing the exercise in the water, completing the biceps curl on land will be affected by the pull of gravity (15).

Because swimming strokes require full body execution, both upper and lower extremities need to be strengthened equally so that all muscles are trained. Full body strengthening will assist the individual's swimming strokes in that they will be performed fluently and thoroughly. Strokes are the aerobic component of the sport as each stroke has unique characteristics, such as the breaststroke or butterfly stroke, and introduces variation in an individual's exercise program. The sample land, water, and stroke exercises in Tables 1 – 5 provide a balanced approach for the older adult seeking a challenging, yet safe, training program.

CONCLUSION

Physical activity has proven to be beneficial in reducing health risks such as obesity, diabetes, CVD, and other chronic diseases (9). The lifestyle choices of being active versus sedentary will affect an individual's overall wellness and be a prime determinant in increasing or decreasing the likelihood of developing these health risks. It should be noted that any type of exercise can be rewarding for the general population, but in this case, a standard training program will not be able to satisfy the demands needed for older adults properly. This age classification must take into consideration the health risks and injuries when choosing the right type of activity type and duration.

Swimming is an exercise that can be modified to each individual's goals while serving as a safe, leisure sport geared towards older adults. Land and water-based exercises can strengthen and improve the ease of performing daily activities and each exercise movement. Water-based training provides an active recovery plan while still building aerobic endurance. Living an active lifestyle may be new and challenging for older adults, but being challenged allows them to grow in motivation and determination. Older adults must recognize that they do not become more prone to disease and injury due to the aging process alone, but through the lack of an active lifestyle.

INTERNAL/EXTERNAL SHOULDER ROTATION (FIGURES 1 – 4)

Internal/external shoulder rotations are exercises that can be performed to strengthen the shoulder rotator cuff muscles. The primary muscles responsible for internal and external rotations include the subscapularis, infraspinatus, and teres minor (8,16). To perform this exercise, the individual can use a band to provide resistance. One end of the band should be attached to a stable object. The individual can be in a standing or sitting position while holding the opposite end of the band, with the elbow bent at a 90-degree angle. The exercise is performed by moving their lower arm in controlled, alternating lateral and medial movements (internal/external rotation). As strength increases, resistance can be increased by using a stronger band.

FIGURE 1. INTERNAL SHOULDER ROTATION – START

FIGURE 2. INTERNAL SHOULDER ROTATION – END

FIGURE 3. EXTERNAL SHOULDER ROTATION – START

FIGURE 4. EXTERNAL SHOULDER ROTATION – END

SINGLE-ARM PULLDOWN (FIGURES 5 AND 6)

The single-arm pulldown is an exercise that uses scapular depression to increase back muscle strength. The major muscles involved in this exercise are the latissimus dorsi, teres major, middle trapezius, rhomboids, and posterior deltoids (16). The individual can perform this exercise with a resistance band to provide resistance. Starting with the arms extended overhead with a wide grip on the band, the exercise is performed by pulling one side of the band down to the side of the body while both arms remain extended.

SEATED ROW (FIGURES 7 AND 8)

The seated row is an exercise that can be used to strengthen the upper body by using scapular protraction/retraction to work the muscles of the shoulder girdle. The muscles involved in scapular protraction/retraction include the middle trapezius, rhomboid, pectoralis major, pectoralis minor, and serratus anterior (16). The exercise should be performed with a resistance band while the individual is in a seated position (8,16). The midpoint of the resistance band should be secured onto a stable object or around the end of the individual's feet. There should be enough space to allow full elbow extension in the starting position. The individual will hold each end of the band with a hand and perform the movement by retracting the scapulae and pulling the band towards the chest. The individual should maintain an erect and stable torso while performing the exercise.

FIGURE 5. SINGLE-ARM PULLDOWN – START

FIGURE 6. SINGLE-ARM PULLDOWN – END

FIGURE 7. SEATED ROW – START

FIGURE 8. SEATED ROW – END

HIP ABDUCTION (FIGURES 9 AND 10)

Hip abduction with resistance bands is an exercise that can help strengthen important muscles utilized for stabilization as well as minimize injuries. The combination of hip abduction and adduction movements are utilized through the lower body in the breaststroke whip motion (14). To perform this exercise, the individual will stand with one end of a resistance band attached to a low anchor to the side of the body and the other end secured around the ankle farthest from the anchor. The individual should try to lift the resisted leg straight out to the side while keeping the leg extended. As the exercise becomes easier, the client can choose a stronger resistance band or step farther away from where the band is anchored.

FIGURE 9. HIP ABDUCTION – START

FIGURE 10. HIP ABDUCTION – END

HIP EXTENSION (FIGURES 11 AND 12)

The hip extension exercise involves the gluteus maximus, gluteus medius, and hamstrings (16). The individual will start this exercise by facing an anchor with a band attached. Place the resistance band around one ankle while the other foot remains on the floor to stabilize. To perform the exercise, extend the resisted leg straight back. Keep the knees straight, and slowly return to the starting position (15).

FIGURE 11. HIP EXTENSION – START

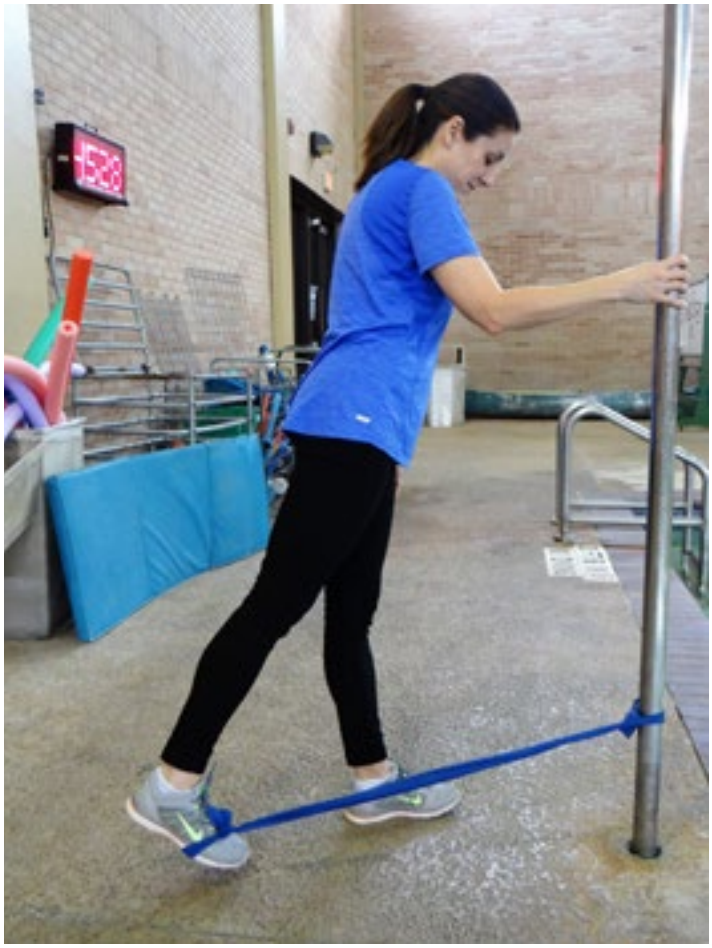

FIGURE 12. HIP EXTENSION – END

SIDE SHUFFLE (FIGURES 13 AND 14)

The side shuffle with resistance bands can be a helpful exercise to activate the gluteals, and incorporate the adductors/abductors (8). The main muscles utilized in the side shuffle are the gluteus maximus and gluteus medius (16). To perform this exercise, the individual will place the band around both legs above the knees while slightly bending the knees in a similar position to a quarter squat. Keeping the core engaged while placing feet and hips shoulder-width apart will assist in executing the movement. While stabilizing on one leg, the individual will step out to the side with the opposite leg and continue for a prescribed distance.

FIGURE 13. SIDE SHUFFLE – START

FIGURE 14. SIDE SHUFFLE – END

WALL SQUAT (FIGURES 15 AND 16)

The stability ball can be used to perform wall squats to help maintain proper form. The muscles targeted for this exercise are the gluteus maximus, quadriceps, and core (16). In the starting position, the individual places the ball between the wall and their lower back. The individual should stand with their feet hip-width apart with knees slightly bent. To perform the exercise, lower the hips until the quadriceps are parallel to the floor with the back in a neutral position.

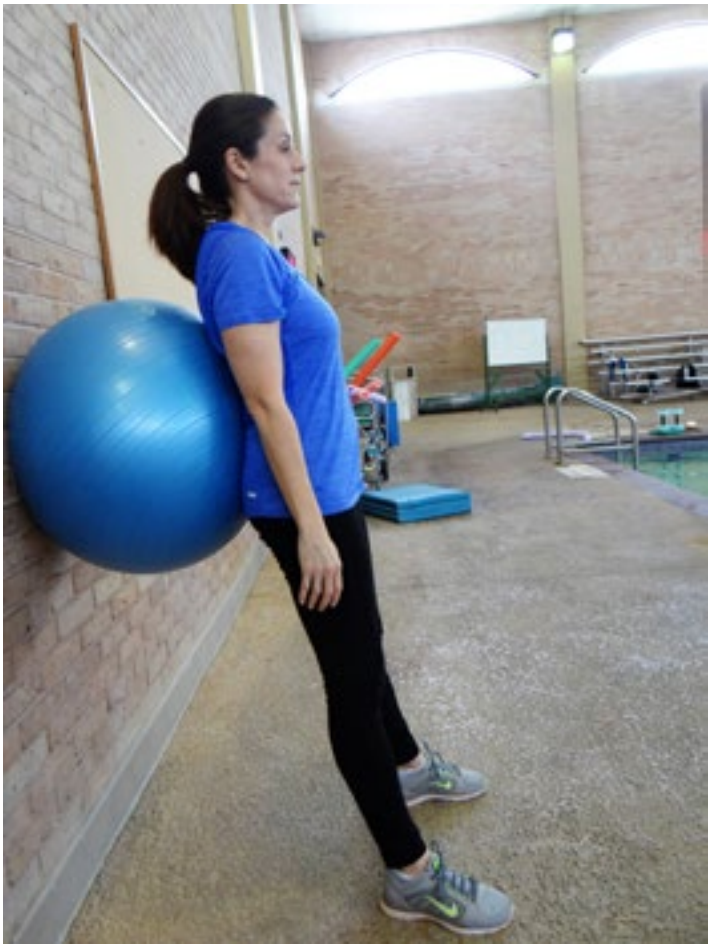

FIGURE 15. WALL SQUAT – START

FIGURE 16. WALL SQUAT – END

SUPINE SINGLE-LEG CURL (FIGURES 17 AND 18)

The supine single-leg curl exercise with a resistance band can be as effective as using free weights or machines when performed properly. The primary muscle for the single-leg curl is the biceps femoris (16). To start this exercise, the individual will lie on their stomach with a resistance band attached to one ankle (8). Position the body far enough from the anchor that the band is stretched slightly in the starting position, and will provide enough tension through the entire range of motion. To perform this exercise, start with the resisted leg fully extended and flex at the knee to pull the heel towards the gluteals. Continue curling until the heel touches, or almost touches, the gluteals. Pause for a count and slowly return to the starting position. The opposite leg should remain extended throughout the exercise.

FIGURE 17. SUPINE SINGLE-LEG CURL – START

FIGURE 18. SUPINE SINGLE-LEG CURL – END

SEATED LEG EXTENSION (FIGURES 19 AND 20)

The seated leg extension is an exercise used to target the semitendinosus and semimembranosus muscles (16). To perform this exercise, the individual will sit on a bench and place a resistance band on one ankle while the opposite side of the band will be attached underneath the bench. The individual begins with both legs relaxed and bent in a sitting position. To perform the exercise, the resisted leg will extend at the knee (against the resistance of the band) while keeping the ankle dorsiflexed to increase tension.

FIGURE 19. SEATED LEG EXTENSION – START

FIGURE 20. SEATED LEG EXTENSION – END

BALL SWIM (FIGURE 21)

The ball swim exercise is a simple and engaging exercise that can be used to strengthen the core and lower back. With this exercise, the individual engages in the same fluttering movement used in the freestyle swim. The muscles worked in this exercise include the gluteals, obliques, and abdominal muscles (16). To start, the individual must lay down with the ball, or half-dome ball, centered just under the ribs. The individual must find balance of the torso by lifting the arms and legs, positioning the body in a straight line. The individual performs the exercise by alternatively fluttering their arms and legs while squeezing their gluteals and engaging their lower back and abdominal muscles.

FIGURE 21. BALL SWIM

MEDICINE BALL THROW (FIGURES 22 AND 23)

The medicine ball throw is an exercise for strength and power of both the upper body and core. There are multiple muscles involved in the exercise which include abdominals, obliques, pectoral muscles, rhomboids, latissimus dorsi, deltoids, trapezius, teres muscles, and serratus anterior (16). The individual starts the exercise on their back, feet on the floor with the knees slightly bent, and the medicine ball held overhead. To perform the exercise, the individual will complete a sit-up motion, while engaging the upper body and core muscles, to throw the medicine ball.

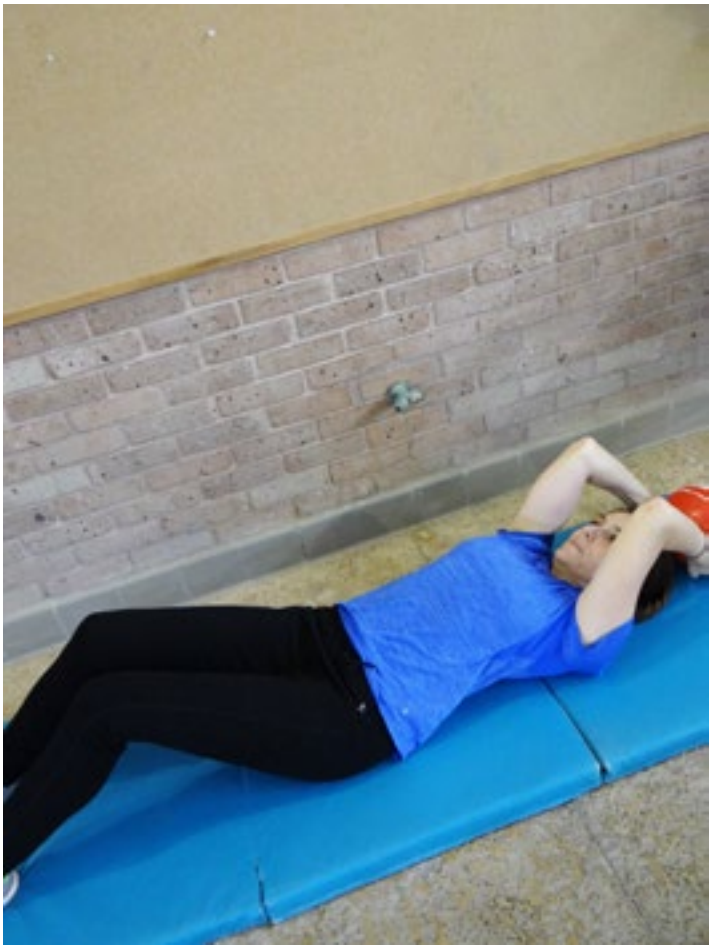

FIGURE 22. MEDICINE BALL THROW – START

FIGURE 23. MEDICINE BALL THROW – END

CHEST FLY (FIGURES 24 AND 25)

The chest fly is an exercise that can be performed in the water to increase strength and work on mobility for the swim stroke movement. The chest fly involves the pectoralis major and anterior deltoid muscles (16). The individual can perform this exercise by using water weights for resistance. In the standing position, the individual will hold one water weight in each hand with a closed neutral grip. The exercise is performed by pulling the arms backward wider than shoulder-width apart, keeping the hands level with the shoulders or chest and maintaining stiff wrists. Then along the same horizontal plane, the individual should bring the weights forward and next to each other, maintaining the wide arm width throughout the exercise.

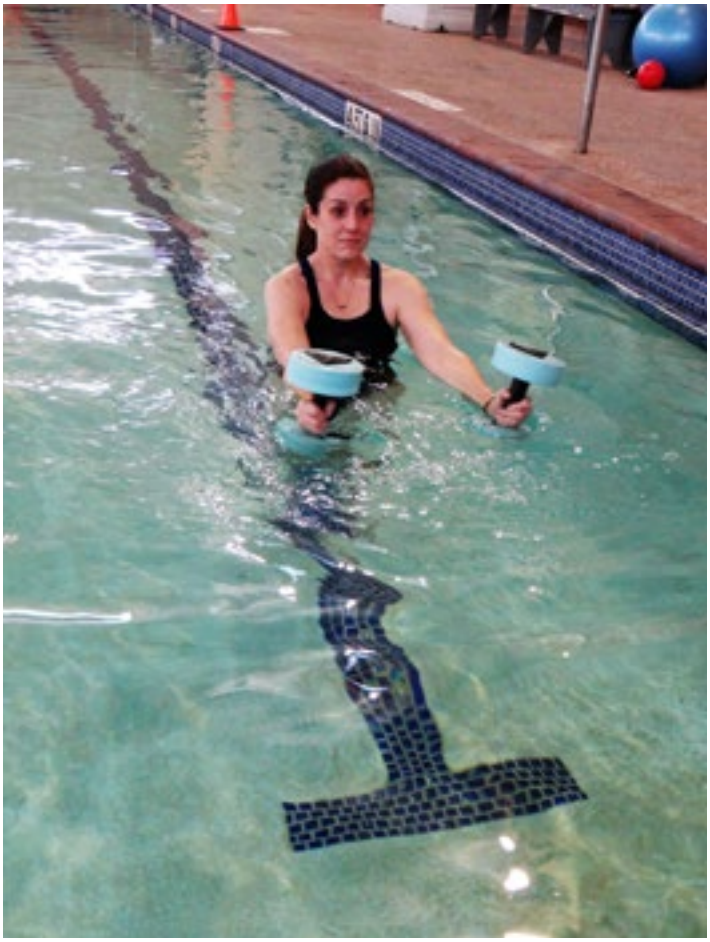

FIGURE 24. CHEST FLY – START

FIGURE 25. CHEST FLY – END

BICEPS CURL (FIGURES 26 AND 27)

Biceps curls are a simple and effective exercise to build strength of the biceps brachii, brachialis, and brachioradialis muscles (16). The individual should perform the exercise in the water from a standing position using water weights. The individual will hold the water weights in each hand with a closed supinated grip, with the feet shoulder-width apart. To perform the exercise, the individual activates the biceps, bringing their hands up to their anterior deltoids and keeping their elbows in the starting position by their side.

FIGURE 26. BICEPS CURL – START

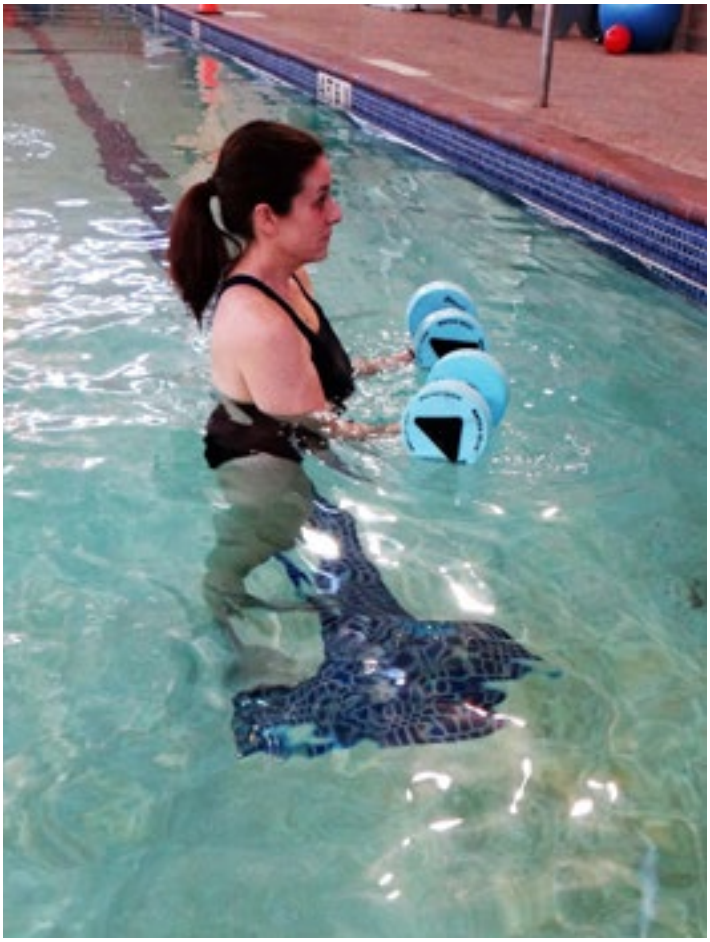

FIGURE 27. BICEPS CURL – END

TRICEPS EXTENSION (FIGURES 28 AND 29)

The triceps extension is an exercise used to strengthen the triceps brachii (16). This is another exercise performed in the water from a standing position. Using water weights, the individual will hold one weight in each hand with a pronated grip, with their feet shoulder-width apart. To start the exercise, the elbows should be flexed, with the forearms just above parallel to the floor. To perform the exercise, the individual will extend their elbows completely, bringing the weights down.

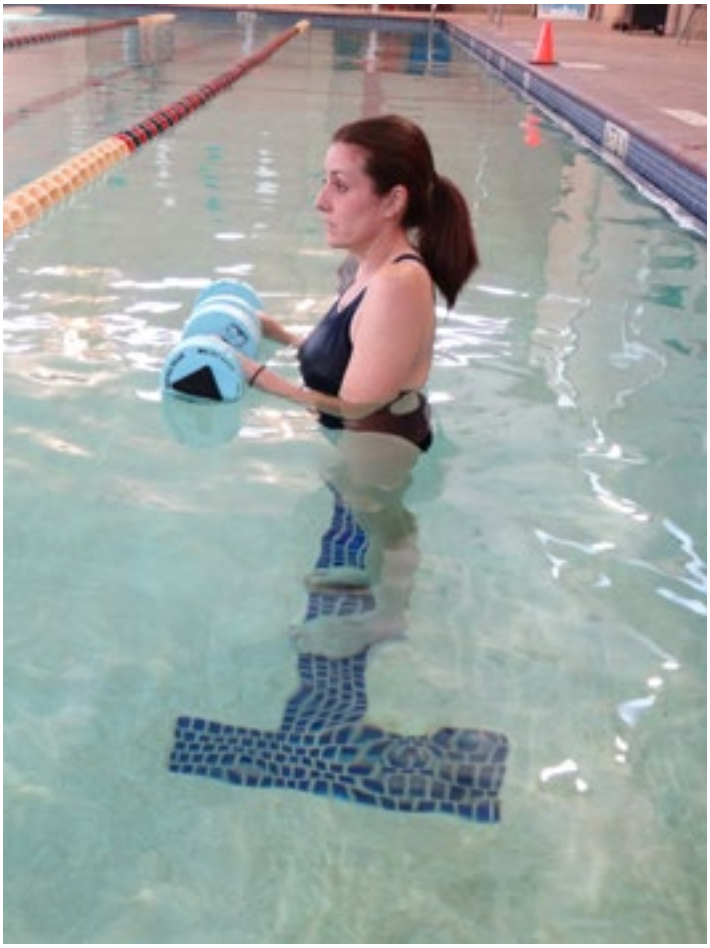

FIGURE 28. TRICEPS EXTENSION – START

FIGURE 29. TRICEPS EXTENSION – END

FREESTYLE STROKE (FIGURES 30 AND 31)

The freestyle stroke is a swimming technique that can be used as a full body exercise because it engages a vast amount of muscles of the body. Upper body muscles used include the pectoralis major, latissimus dorsi, wrist flexors, biceps brachii, brachialis, triceps brachii, supraspinatus, infraspinatus, teres minor, and subscapularis (16). The core stabilizers involved include the transversus abdominis, rectus abdominis, internal oblique, external oblique, and erector spinae (16). Lower body muscles involved include the iliopsoas, rectus femoris, quadriceps, gluteus maximus and medius, hamstrings, gastrocnemius, and soleus (16). To perform the freestyle stroke, the individual's arms must be extended and alternate in and out of the water, in an upward and downward motion, to propel the body forward by rotation of the shoulder rotator cuffs. The individual's knees must remain extended and the feet must be kept in a plantar flexed position throughout the kicking movements. The hips alternate between flexion and extension through the upward and downward motions.

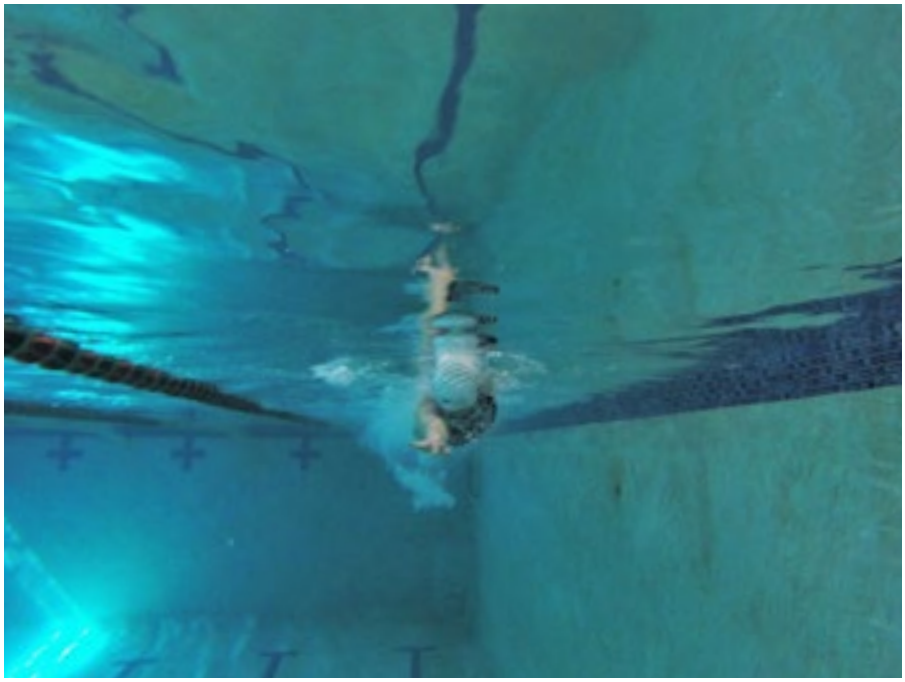

FIGURE 30. FREESTYLE STROKE – START

FIGURE 31. FREESTYLE STROKE – END

BREASTSTROKE (FIGURES 32 AND 33)

The breaststroke is full-body swimming stroke which requires a more elaborate technique. Upper body muscles include the pectoralis major, latissimus dorsi, wrist flexors, biceps brachii, brachialis, triceps brachii, supraspinatus, infraspinatus, teres minor, and subscapularis (16). The core stabilizers involved include the transversus abdominis, rectus abdominis, internal obliques, external obliques, and erector spinae (16). Lower body muscles involved include the iliopsoas, rectus femoris, quadriceps, gluteus maximus and medius, hamstrings, gastrocnemius, and soleus (16). The stroke begins with the gliding phase, with the anterior part of the body facing the water, the arms and legs extended straight together in a streamlined position, and the palms of the hands faced down. The individual must propel the body forward and upward by internally rotating the shoulders, and turning the palms outward while spreading the hands wider than shoulder-width apart. The individual then flexes the elbows to bring the hands back inward to return to the gliding position. During what is called the "recovery phase," hip and knee flexion and slight hip abduction occur, bringing the heels towards the gluteals. The ankles make a circular motion before returning to the gliding position. The individual must breathe in when the body is propelled upward, bringing their head out of the water. The trunk remains generally in the same position throughout the entire stroke.

FIGURE 32. BREASTSTROKE – START

FIGURE 33. BREASTSTROKE – END

BUTTERFLY STROKE (FIGURE 34)

The butterfly stroke is the most difficult to learn of the listed swimming strokes, due to its advanced technique. Muscles involved during the butterfly stroke include the pectoralis major, latissimus dorsi, wrist flexors, biceps brachii, brachialis, triceps brachii, deltoids, and rotator cuffs (16). The abdominal muscles, like the rectus abdominis and obliques, as well as the paraspinal muscles are also activated. Muscles used during the kicking movement include the hip flexors, rectus femoris, iliopsoas, gluteals, and hamstrings. A plantar flexed position of the ankle increases the activation of the gastrocnemius and soleus (16). The butterfly stroke begins by keeping the body flat while in the water. The arm action requires a catch, pull, and recovery movement. With arms out straight, shoulder-width apart and palms facing downwards, the individual should press down and out at the same time with both hands. The individual then pulls the hands towards the body in a semicircular motion with palms facing outwards, keeping the elbows higher than the hands. Once both hands reach the upper thighs at the end of the pull, sweep both arms out and over the water simultaneously and move them forward into the starting position. The individual should make sure the palms are facing outwards so the thumbs re-enter the water first. The leg movement is a powerful downward kick, which makes the body move in a "wave-like dolphin movement" and results in a large knee bend and a powerful kick. The power of the kick assists the body to rise out of the water and begin another stroke.

FIGURE 34. BUTTERFLY STROKE

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Amanda Garcia is a prospective December of 2017 graduate from the University of Texas Rio Grande Valley with a Bachelor's degree in Exercise Science, focusing in Physical Therapy. With this degree, Garcia wishes to attend a physical therapy doctoral program in the state of Texas. She hopes to return to the Rio Grande Valley to give back to the community by providing her knowledge and experience to a region that demands it. Garcia is currently a physical therapy technician to assist in furthering her future and will continue to discover various ways to reach her dream in order to give others all she can.

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Deahna Rae Garcia received her high school diploma from Edinburg High School, where she was a cross-country athlete. She is currently a student pursuing her Bachelor of Science degree in Kinesiology with a Minor in Health Education at the University of Texas Rio Grande Valley. While there, she has also completed her internship as a student athletic trainer. She is a member of the University of Texas Rio Grande Valley Health and Kinesiology Club and the National Society of Leadership and Success. Garcia plans to complete her degree program as of July 2017 and intends to become a Certified Strength and Conditioning Specialist® (CSCS®) through the National Strength and Conditioning Association (NSCA) after graduation to pursue a career as a strength and conditioning coach.

Erika Garcia is a senior at the University of Texas Rio Grande Valley, Majoring in Exercise Science with a focus in Physical Therapy. After graduating, Garcia plans to continue her education and get into the school of doctoral of physical therapy. Garcia has found a passion for rehabilitation and physical fitness of the human body. Garcia's interest in the geriatric population has increased after researching and working closely with this age group. Garcia plans to use her future career as a physical therapist to assist, motivate, and teach her clients.

WHAT IT TAKES TO SURVIVE AND THRIVE AS A FITNESS STUDIO OWNER

JOSH LEVE

The fitness industry is becoming more and more crowded. Simply walk down any street in an urban area and you will likely find what seems like a fitness studio on every block. In fact, based on research from IBIS World, there are over 100,000 fitness studios in the United States (5,6,7). Add to that the 279,000 personal trainers being reported by the Bureau of Labor Statistics and it is easy to see that consumers have more choices now than ever (4).

It is no secret that it takes a lot to differentiate yourself in today's competitive market. But for these owners, what does it truly take to thrive in this industry? What are the strategies necessary to deploy that get you to the next level? This article will cover many of these strategies later, but for anyone who has decided to go out on their own there are and will always be barriers to your success. You did not just show up one day and have 50 clients handed to you, right? You worked hard, did what was necessary, and positioned yourself for success.

The same philosophy goes for anyone running their own business. There will undoubtedly be days where you will be met with adversity and barriers in the road, but it is how you react to those barriers, and what decisions you make, that will ultimately impact your future. The first step is to understand and know the market and what you are up against.

FITNESS STUDIO CLIENTS LIKE VARIETY

As reflected in Figure 1, pulled from the Association of Fitness Studios' (AFS) 2016 Operations and Financial Research Report and based on data from International Health, Racquet and Sportsclub Association's (IHRSA) 2016 Health Club Consumer Report, approximately 86% of all fitness studio clients engage with at least one other facility, three times the percentage that members of traditional health/fitness settings (3,8). A key takeaway from this data is that fitness studio clients value a variety of experiences when it comes to their fitness regimen. Because of this, it makes it more difficult for studio owners to build a sustainable client base, unless they are able to deliver the type of experience that fosters sustainable client loyalty. According to a recent post discussing loyalty statistics for Millennials, loyalty can be potentially enhanced by creating an experience that is highly personalized and fun, and also by offering a loyalty program (1).

NO ONE GUARANTEES YOUR SUCCESS

For those of you thinking about going out on your own, how confident are you that you will be successful? What have you done to minimize your risk? Do you have an exit strategy? The reason I bring up these questions is because when running your own business, you take on all the risk. You build your vision, raise the money, put your name on the lease, etc., but nowhere has anyone guaranteed your financial success.

When you struggle, it is easy to get angry at the universe. You feel this sense of entitlement that because you took the risk, you should be entitled to succeed. This is not so. The real issue can be due to many factors, including:

- Poor marketing or not marketing at all
- The competitive landscape
- Not understanding your market
- Failure to budget properly

Sometimes, your vision just does not match what the consumer wants to buy. In fact, when you move from personal trainer, coach, or instructor into business owner, like it or not, you are an entrepreneur. And this new role comes with a completely different set of skills and knowledge.

WHAT YOU CAN DO NOW TO THRIVE

What makes you great at what you do? Odds are it is not about you, it is about how you make your clients feel about themselves. They pay a premium to be trained by you—as long as you continue to deliver the personalized experience.

But people first have to know you care and they have to know the experience you will provide is better than anyone else. So how do you translate the success you have had previously into running your own business? When it comes to marketing, there are several ways.

1. GET ACTIVE AND GET INVOLVED

a. Sponsor or host community activities (e.g., youth football league or local fitness and health activities for young adults).
b. Invite the press to special events at your studio (e.g., grand opening, special activities, community-interest events, etc.).
c. Become a health and fitness resource for the community. Contact the local press and see if they can write a question-and-answer column for the paper, or a blog for its online publication.
d. Create your own blog and develop it as a resource for the community.
e. Align with local charities and establish a presence in your community, maybe they will promote for you.

2. DEVELOP STRATEGIC PARTNERSHIPS

Just because you do not have the same marketing budget as your larger competitors, does not mean you cannot get creative. In order to have continued success, you must not rely solely on referrals. You must be out there, spreading your message throughout your community. The following are examples of how to develop these community partnerships:

a. Visit each potential partnership company within a three-mile radius.
b. Meet with the owner or manager.
c. Invite them in for a complimentary session.
d. Gain their trust.
e. Foster the relationship.
f. Keep the lines of communication open and often.
g. Visit often and continue to grow the relationship.

3. CREATE A MARKETING PLAN

In the 2016 Marketing Best Practices Report from AFS, it was identified that 57% of studio owners do not have a marketing plan (2). How can you expect long-term success without a plan? Start with these tips:

a. Develop a budget and determine your spending.
b. Identify your target market.
c. Determine your campaigns and offers. The offer is very important. Get people to give you a try in a way that they feel comfortable and in control.
d. Develop a trial offer. Create a series of no-risk offers that allow prospects to try your services without making a long-term commitment.
e. It should not be free. There is no value in free. Set a reasonable price based on your current pricing and what the trial contains.

4. DETERMINE YOUR MARKETING VEHICLES

What strategies and tactics will you use to get people to know about you and to help spread your message? In the same AFS Marketing Best Practices Research Report, social media and referrals were the most widely used methods (Figure 2) (2). Ultimately you can break down marketing into three different categories:

a. Internal marketing: This includes throwing events and parties. Creating wow factors, such as giving out flowers on Valentine's day and calling members/clients on their birthday, referral strategies, and identifying your brand ambassadors. Those who will go out into your community and spread your message and generate referrals.
b. External marketing: Ways to implement external marketing include participating in and attending community events. These can be speaking arrangements you set up at a local health store or developing strategic partnerships with a local physical therapy center.
c. Social media: What is the goal of social media? 1) Build your audience, 2) share with them authentically, 3) educate them, and 4) do not post the same content on other social channels. Not sure what to post? Post a quote, an article, or a video you found that you enjoy.

Ultimately, every business goes through several life stages defined by its time in business, degree of business growth, and finally, its level of profitability. For a business to truly thrive, it will take hard work, dedication, and the ability to adapt when necessary. There will always be barriers to your success, but for those that take the risk or have already taken that leap, the following are my personal top 10 key insights to truly thrive.

TOP 10 KEY INSIGHTS

1. "Own" the area within three miles of your facility.
2. Create your own newsletter.
3. Have a party.
4. Get educated. If you do not know something do not fake it—seek out a mentor.
5. Solve all problems without delay.
6. Build a community of raving fans. Be laser-focused on your clients' results. Results are the best form of marketing.
7. Document your results better with your current clients (pictures; measurements; testing; 30-, 60-, and 90-day goals; etc.).
8. Write more: blogs, newsletters, journals, magazines, newspapers.
9. Speak more: host a quarterly workshop; network with a chiropractor, physician, and/or nutritionist; and get out there and speak.
10. Introduce yourself more and develop strategic partnerships.

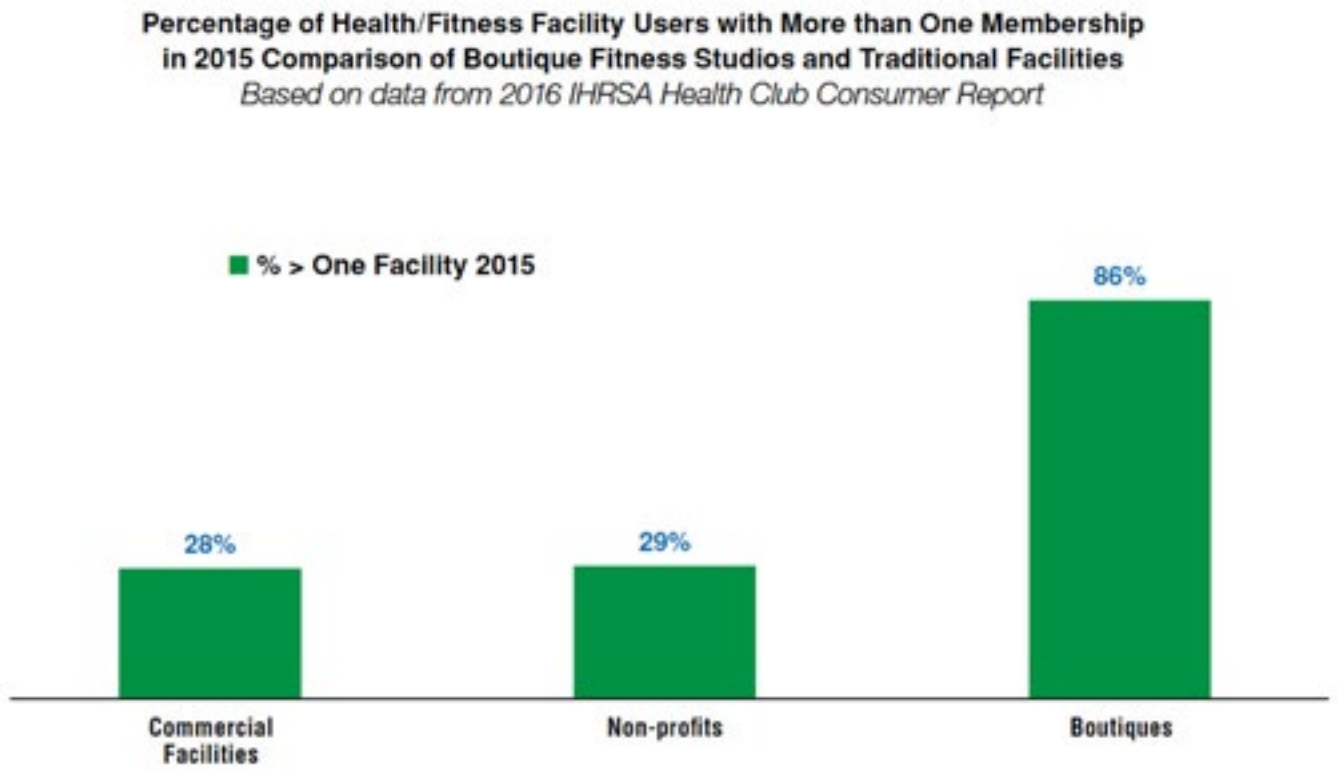

FIGURE 1. PERCENTAGE OF HEALTH/FITNESS USERS WITH MORE THAN ONE MEMBERSHIP (3,8)

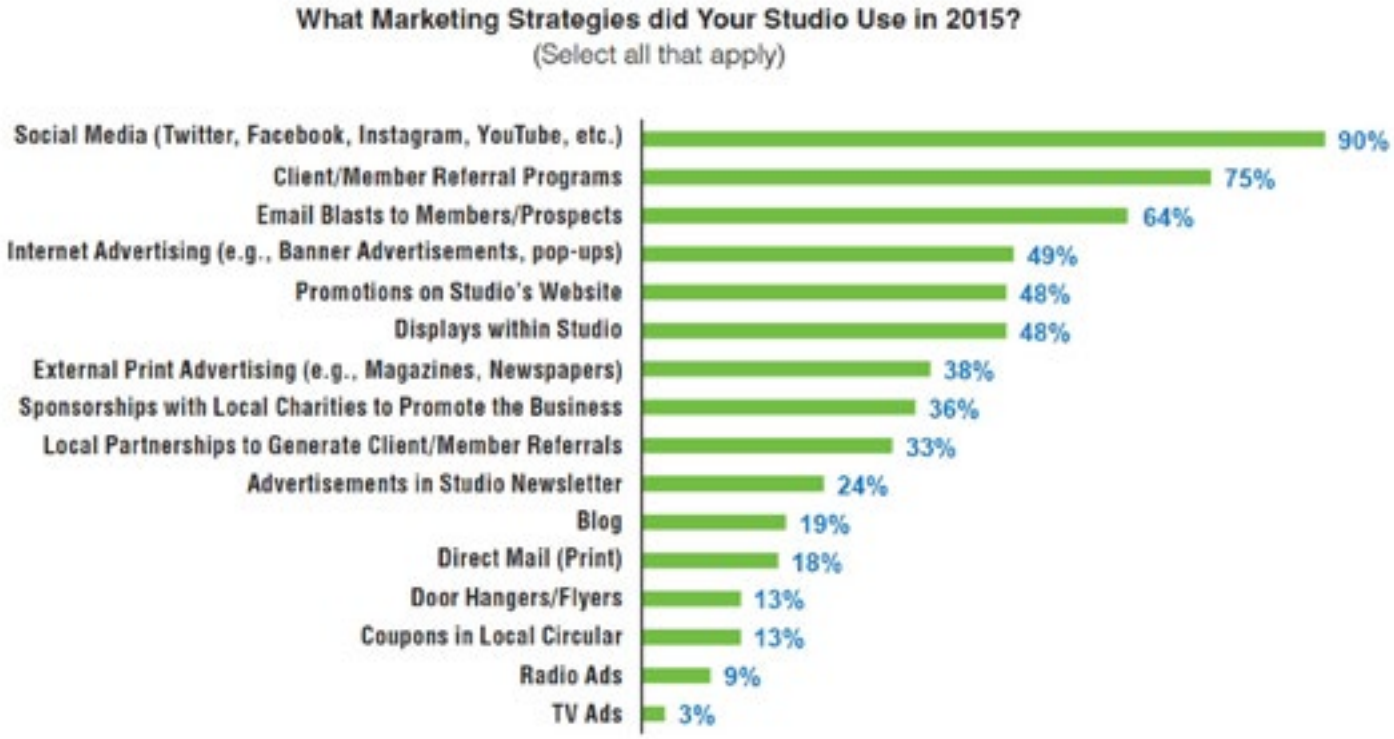

FIGURE 2. MARKETING STRATEGIES USED (2)

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As Co-Founder and President of the Association of Fitness Studios (AFS), Josh Leve is responsible for strategic business operations of AFS. Leve has over 10 years of sales, consulting, advertising, marketing, operations, and retail fitness experience. Prior to AFS, Leve successfully turned around the financial performance of three different big box facilities in Chicago, IL, while providing consultative services for smaller fitness studios. Prior to his health club experience, Leve worked with Corbett Accel—the largest healthcare communications/advertising company in the United States—where he launched products for major pharmaceutical companies such as Merck, Bristol Myers Squibb, and Sanofi-Aventis. Leve holds a Bachelor of Arts degree in Journalism from the University of Kansas.

CONSIDERATIONS FOR DONATING BLOOD, PLATELETS, AND PLASMA

DAWN WEATHERWAX, RD, CSSD, ATC, CSCS

Donating blood, platelets, and plasma can be a precious gift of life. Not many gifts have that much significance. Unfortunately only 5 – 10% of those who are eligible donate (4). The question is, if one is a very active individual or a competitive athlete, what are the positives and negatives of donating blood, platelets, and plasma?

THE PROS

This is the simple part. The donation can positively impact human lives. Plain and simple, if someone can give, they should give.

THE CONS

This is more complicated. Athletes frequently work over 40 hr a week, which encompasses training, competing, and traveling (5). The average donation is equivalent to one pint of blood; this amount reduces blood volume levels around 10% and hemoglobin 10 g/L (1 g/dL). Blood cells rejuvenate within 24 – 48 hr; however, the level of blood hemoglobin and VO_2max typically does not recover for up to 3 – 4 weeks (3,6,8,13,18,20,24,29).

Other aspects to consider when donating are iron and ferritin levels (11,23). When donating blood, the body replaces the lost red blood cells by synthesizing new ones. To build back hemoglobin, it requires stored ferritin. A study looking at 2,982 blood donors found that iron levels measured by serum ferritin where negatively linked with the frequency with which one donates (17).

Because of this, the ferritin test is the preferred measurement to determine the amount of iron in the body (7,30). At least 25% of any group of such athletes can be expected to exhibit low ferritin levels without being anemic (28). Athletes who are most susceptible are ones with a low dietary iron intake, menstrual losses, high training levels, irritable bowel syndrome, or any gut absorbing deficiencies. Low ferritin levels may lead to anemia, extreme fatigue, impaired cognitive performance, suboptimal metabolism, susceptibility to infection, and compromised immune system and brain development (2,9). The recommended level of ferritin is more controversial since recent studies have suggested that even non-athletes may need more than previously thought (19). Many authorities recommend iron supplementation with those found to have hypoferritinemia, or an unusually small amount of ferritin (11,16,25,32,33). Besides supplementation, a dietary goal of 18 mg for men and 18 – 32 mg for women of iron a day is suggested for athletes (22,26). Foods that contain good sources of iron include liver, beef, chicken, salmon, lentils, beans, potatoes, quinoa, spinach, broccoli, apricots, potatoes, pumpkin seeds, thyme, 80% dark chocolate, molasses, tofu, and tempeh (15).

SHOULD YOU DONATE?

1. Athletes should always talk to their coach, certified athletic trainer, sports dietitian, strength coach, or sports medicine professional before donating.

2. Elite athletes may wish to avoid donating blood altogether until their career has ended due to blood doping and World Anti-Doping Agency (WADA) implications.

3. Athletes should get appropriate lab work completed prior to donating on hemoglobin and ferritin. They may also wish to test for hematocrit, mean corpuscular volume (MCV), total iron binding capacity (TIBC), and any other labs the sports dietitian or physician deems appropriate.
   a. Hemoglobin levels: to be a donor, the American Red Cross recommends 12.5 g/dL for women and 13.0 g/dL for men (14).
   b. Ferritin levels: it is recommended to be at least 25 ng/ml (11,23). However, caution is warranted because once someone reaches low levels of ferritin it can take several months to return to an ideal range.

4. Athletes should avoid donating if struggling with anemia, micronutrient deficiencies (e.g., B vitamins, folate, and zinc), malabsorption issues (e.g., irritable bowel syndrome and leaky gut), autoimmune disorders (e.g., adrenal stress, hypothyroid, and celiac disease), or any other health issue that impact energy levels (2,9).

If you find yourself in doubt or the above criterion does not support a blood donation, there is another way to give back. Provide plasma or platelets only. Plasma regenerates in hours, whereas platelets rebuild within 72 hr. There is not much research on donating plasma and platelets on performance, but at this time it seems safe to do so without negative consequences on performance (4).

OPTIMAL TIME TO DONATE

1. The best time to donate is in the off-season, or a very light part of training that extends past 30 days (10).

2. It is best to avoid donating on competition days.

3. For female athletes, it is advised to avoid donating around menses.

TIPS FOR A SUCCESSFUL DONATION

DAY BEFORE

1. Start hydrating 1 – 2 days prior by getting at least half your weight in fluid ounces a day (this does not include fluid lost during activity) plus a minimum of 1,500 – 2,300 mg of sodium a day.

2. Intake 18 mg for men and 18 – 32 mg for women of dietary iron a day, a minimum of 1 – 2 days before (22,26).

3. Avoid alcoholic beverages at least 24 hr prior to donating.

4. Avoid strenuous exercise 24 hr prior to donating (4).

DAY OF

1. Wear comfortable clothing and short sleeves if possible.

2. Bring a list of medications and supplements that you are currently taking.

3. Bring identification.

4. Drink 8 oz of fluid (250 ml) 30 min prior to donation and continue hydrating half of your weight in fluid ounces that day (21).

5. If you are not sensitive to caffeine and above 18 years of age, you might consider ingesting 250 mg of caffeine prior to donation to decrease the odds of fainting (31).

6. Avoid strenuous activity, including heavy lifting, for up to 24 hr after giving blood.

7. Intake 18 mg for men and 18 – 32 mg for women of dietary iron (22,26).

8. Intake 1,500 mg – 2,300 mg of sodium.

9. Make sure you eat enough quality foods throughout the day to avoid calorie deficits for the day (4).

DAY AFTER

1. Listen to your body. If you feel good, you can build up to a normal activity schedule. However, some people feel faint or tired after donating. Continue to hydrate, eat high-quality foods throughout the day, and avoid exercising. If symptoms continue several days after donating, contact your physician or donation center.

2. Beware that workouts for the next 30 days should be low impact or shorter in duration. Avoid intense or long-distance events due to fatigue and slower recovery (1).

3. Make sure you feel 100% before engaging in more extreme training sessions.

4. Train by effort rather than by pace.

5. Continue to aim for 18 mg for men and 18 – 32 mg for women of daily dietary iron. You may need more that the recommended iron depending on lab work and what the sports dietitian or sports medicine doctor recommends (22,26).

6. May consider iron supplementation depending on dietary intake and advice from the sports dietitian or sports medicine professional (11,16,32,33).

When deciding to give blood, plasma, or platelets, it is very important to understand all the pros and cons of donating. While it is not always easy for an athlete to donate due to training schedules and time restraints, impacting another human's life is priceless. Give if you can, when you can.

TABLE 1. SPECIFICS ABOUT THE DEMAND FOR BLOOD DONATIONS (1)

Every two seconds someone in the United States requires blood
Close to 7,000 units of platelets and 10,000 units of plasma are needed daily
Approximately 21 million blood constituents are transfused yearly
The average red blood cell transfusion is three pints
Type O negative blood and AB positive plasma are the highest in demand and usually in short supply
Blood cannot be created, it must be donated
Donated blood lasts up to six weeks

TABLE 2. DEFINITION OF COMMON TERMS (27)

Blood	The fluid that circulates in the heart, arteries, capillaries, and veins carrying nourishment and oxygen, and bringing away waste products from all parts of the body.
Platelets	A minute colorless anucleate disc-like body of mammalian blood that is derived from fragments of megakaryocyte cytoplasm. It is released from the bone marrow into the blood, which assists in blood clotting by adhering to other platelets and to damaged epithelium—also called blood platelet or thrombocyte.
Plasma	The pale yellow fluid of whole blood that consists of water and its dissolved constituents, including proteins such as albumin, fibrinogen, and globulins.
Hemoglobin	A protein of red blood cells that contains iron and carries oxygen from the lungs to the tissues and carbon dioxide from the tissues to the lungs.
VO_2max	The maximum amount of oxygen the body can utilize during a specified period of time, usually during intense exercise.
Iron	Vital to biological processes as a transport of oxygen in the body.
Ferritin	A crystalline iron-containing protein that functions in the storage of iron and is found in the liver and spleen.

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BEFORE YOU JUMP—CONSIDERATIONS PRIOR TO OPENING YOUR OWN FACILITY

ROBERT LINKUL, MS, CSCS,*D, NSCA-CPT,*D, RCPT*D, FNSCA

There is a common saying, "the grass isn't always greener on the other side." We have all likely heard this saying many times before and in this case, it rings true. According to a 2016 Small Business Administration statistical report 50% of small businesses close within five years of opening their doors, including small gyms and studios (6). The main reasons for this are the owner's lack of business education, limited working capital, and minimal ability to generate income (3). It is not always easy working for other people; however, there is a lot more than meets the eye when it comes to opening your own facility

It can be very challenging working for an employer that appears to not have the personal trainer's best interests in mind. Frustration can build, opportunity can be squandered, and financial gain and health benefits can be offered, earned, and removed at the drop of a hat. These components can lead to a personal trainer feeling fed up with their current situation. Ultimately, this situation can push the trainer toward the idea of opening their own facility. However, before taking any steps toward opening a facility, the personal trainer should review the following considerations to ensure they are making the right decision.

WHY DO YOU WANT TO LEAVE IN THE FIRST PLACE?

Typically, there are three reasons why a personal trainer becomes unhappy with their current employment provider. If one, or all, of these reasons are present, resentment may begin to develop between the personal trainer (employee or independent contractor) and their provider of employment. Just as a personal training client needs to set a new goal once accomplished, a personal trainer needs to know what their next professional goal is and how to pursue it. If one, or all, of these professional goals are obstructed or removed by a personal trainer's employer they will begin to consider the idea of venturing out and doing it on their own.

1. Limited or No Opportunity to Increase Income

- Capping the number of hours a personal trainer can work in a day, week, or month
- Restricting the number of clients a personal trainer can have
- Not allowing for partner, semi-private, group, or specialty-type large group training models (e.g., boot-camp, HIIT, etc.)
- Refusing or not offering pay rate increases based on annual reviews of the performance and on-the-job duties of the personal trainer

2. Limited or No Opportunity for Professional Growth

- Not offering promotion opportunities for the personal trainer to progress (e.g., head personal trainer, fitness director, manager, etc.)
- Not allowing for out-of-facility career opportunities like speaking engagements, teaching, or other professional development opportunities

3. Limited or No Opportunity for Health Benefits and Retirement Options

- Restricting the weekly hours of the personal trainer in order to keep them under the "full time" status (this keeps the full-time personal trainer from qualifying for health benefits)
- Restricting the hours or capping the total income of the personal trainer to keep them from qualifying for retirement options, if offered (e.g., 401K)

DO YOU REALLY KNOW WHAT RESPONSIBILITY YOU ARE ABOUT TO TAKE ON?

Opening a facility has many expenses that must be organized, processed, and maintained on a regular basis. Most personal trainers seeking to go out on their own do not consider these expenditures, or underestimate their true costs prior to making the jump to open their own place. Once all prices have been negotiated and a lease has been signed, there are many fixed prices that must be met (4). Some costs are shared by the landlord, although typically most costs are the responsibility of the tenant.

1. **Business Responsibility:**
   - Applying for and maintaining a business license
   - And/or a limited liability company (LLC) or S-Corp

2. **Facility Responsibility:**
   - Rent
   - Common area maintenance or triple net
   - Utilities (e.g., electric, gas, water, sewer, etc.)
   - Phone
   - Internet
   - Security system
   - Cleaning crew

3. **Financial Responsibility:**
   - Applying for and paying back a loan
   - Paying legal fees for a lawyer to review the lease, professional paper work, and legal forms
   - Annual or quarterly payments for an accountant to review paper work and prepare tax forms and payments

4. **Outfitting your Facility:**
   - Equipment (e.g., racks, dumbbells, barbells, bumper plates, benches, medicine balls, etc.)
   - Tools for equipment maintenance
   - Rubber flooring and equipment to maintain and clean flooring
   - Build and maintain locker rooms
   - Build and maintain restrooms
   - Restroom supplies (e.g., soap, tissue paper, dispensers, etc.)
   - Storage cubbies
   - Towels
   - Washer and dryer
   - Gym wipes

5. **Software and Marketing:**
   - Scheduling software
   - Billing software
   - Marketing software
   - Marketing materials (e.g., signs, banners, window decals, t-shirts, bags, towels, hats, etc.)
   - Social media
   - Website
   - Mail material

6. **Facility Maintenance:**
   - Weekly cleanings
   - Equipment checks and updates
   - Floor cleanings and upkeep
   - Facility opening inspections
   - Heating, ventilation, and air conditioning (HVAC) inspection and maintenance
   - Insect inspections and maintenance

Oftentimes, trainers try to take on too many of these tasks themselves and it takes time and energy away from them being a trainer and from their free time. Also, doing so makes it more difficult to do what they love, which is enjoy training and helping clients. This is a consideration any trainer thinking of opening a facility should be aware of and plan for accordingly.

DO YOU "OWN" YOUR PROFESSIONAL DEMOGRAPHIC

The personal trainer needs to establish a reputation within their community to build their business and be known throughout the area. Developing a reputation can take a very long time and a great deal of effort to maintain. In an industry that rates personal referrals as the number one resource for generating leads and earning new business, the personal trainer should try to build a reputation based on the demographic(s) in which they enjoy working with the most (2).

In the process of doing so, the personal trainer must ask themselves the following questions (listed below). The personal trainer that answers "no" to the majority of these questions is going to struggle generating new business upon opening their own facility due to the lack of reputation and expertise within the community.

1. Am I an expert on the demographic I am working with?

2. Do I have the basic and advanced level certifications needed to work with this demographic?

3. Do I have years of experience working with my demographic or participating in an internship or mentorship program to learn as much as I can about training my demographic?

4. Do others refer people to me based on my reputation for working with individuals in this demographic?

5. Do I have next level training or education via attending annual conferences, clinics, and symposia on the most up-to-date information needed to train my demographic efficiently and effectively?

CLIENTELE TRANSITION

Many personal trainers open their facility with the mindset that new business (new clients) will simply show up once their doors are opened. For small gyms and personal training studios with a minimal (or nonexistent) marketing budget, this is not a successful business plan (1). Small businesses are more likely to be successful if they open with an established clientele ready to support it. The personal trainer should consider, of their current clientele, who would come with them if they were to open their own facility. With

an estimated number of clients willing to make the transition to a new facility, the personal trainer can "forecast" a budget based on the clients' average monthly investment (4).

Having a committed clientele achieves two major objectives. First, it generates immediate cash flow for the facility to operate on. This keeps the working capital reserve untouched and allows for the facility to open its doors making a profit (or breaking even), and covering its operating costs right out of the gate. Second, is access to a group of people who are willing and able to help grow the business via word of mouth and referrals. For small businesses, a key to success is negotiating and implementing a low overhead budget and relying on consistent flow of income. This cash flow is created and maintained by an established and loyal clientele excited about their new facility and that are willing to refer new business via their family, friends, and colleagues (5).

NOW THAT YOU KNOW, YOU NEED TO ASK YOURSELF "AM I READY FOR THIS?"

Hopefully the previous considerations have shed some light on the reasons why a personal trainer may consider opening a facility, and the amount of work and responsibilities that are required to do so. The intention of this article is to provide insight to some of the main steps required to open a facility to any personal trainers considering leaving their current position of employment. Armed with this knowledge, the personal trainer must ask if they are truly ready to take on this task.

If the answer is "no," the personal trainer should do everything within their power to improve their current state of employment to maximize their professional growth. If the answer is "yes," the personal trainer should begin the process by creating a timeline, a business plan, and a blueprint outlining the progressive steps and requirements needed to make their goal of opening a facility a reality (7).

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HYDRATION

GATORADE
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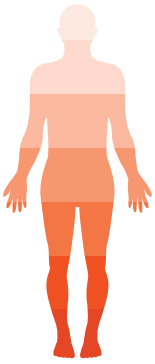
HYDRATION DEMYSTIFIED

Moving muscles produce heat! Overheating will shut down muscles and negatively impact performance. Sweating helps keep you cool and safe. However, fluids are necessary to replace sweat losses and help keep you going.



Optimal hydration supports daily training and recovery. Dehydration's effects can take hours to days to recover from. At a certain point, dehydration can increase the risk of heat illness and decrease performance by affecting muscle and cognitive function.[1]

SWEAT SESSION

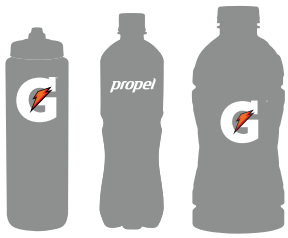
Water plays important roles in our bodies like removing waste, regulating blood volume and blood pressure and transporting oxygen and nutrients to the brain and muscles. Water also plays an important role in body temperature regulation by transferring heat. When a person exercises, heat is created within the body – sweating and the evaporation of sweat from the skin surface is the primary mechanism by which the body cools itself.

Drinking fluids with electrolytes, specifically sodium, may help replace what is lost in sweat. Sodium also stimulates thirst and increases fluid retention to aid in hydration and help you get the most out of your workout.[2]

Losing more than 2% of body mass through sweat is a sign of significant dehydration.

FITNESS FALTERS WHEN DEHYDRATION SETS IN

Make sure you and your clients stay safe and stay hydrated. Try this activity to estimate how much to drink during a workout:



Weight before workout *(nude or little clothing)* _____
Weight after workout *(nude or little clothing)* _____
Subtract them = _____
Multiply by 16 oz. = _____ oz.
For the next similar workout, add this much fluid.

PUTTING IT INTO PRACTICE

Keep the following in mind as you work with your clients. Encourage them to:

- **Begin Workouts Hydrated:** Drink fluids throughout the day and monitor urine color. Light color like lemonade *(not clear)* is the goal *(optimally evaluated after first waking up). Try to limit drinks with high amounts of caffeine and sugar (a little is OK, a lot is not!)*
- **Replace Fluids & Electrolytes:** Drink regularly while working out. Take advantage of breaks during workout sessions *(and as a trainer, build them in!)*
- **Rehydrate After Exercise:** Take in fluids and electrolytes after a workout to put back what was lost in sweat.

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INCORPORATING RESISTANCE TRAINING AND PILATES TO IMPROVE FLEXIBILITY IN MIDDLE-AGED WOMEN

EDEN LEIJA, MARCELA MARTINEZ, CHRISTINA MEDRANO, AMANDA OCHOA, AND CLARISSA OLIVARES

INTRODUCTION

An active lifestyle is recommended throughout our lives in order to maintain a healthy life (1,5). For middle-aged women, physical activity is very important because their bodies begin to become less physically efficient. The middle-age stage of life is a period between middle adulthood and late adulthood, which is considered to be between the ages of 45 and 60 (10). When women reach their "middle ages," staying healthy and being physically active is crucial because physical activity may help to slow the aging process. Although it is ideal to have begun regular exercise at a young age, it is possible to reverse or alleviate the effects of various degenerative processes that can begin within the middle-ages (1). Middle-aged women are common among individuals who request personal training services and can benefit from various types of exercises, such as resistance training and Pilates. Also, due to the popularity of Pilates with this particular population, incorporating Pilates into comprehensive resistance training programs may enhance enjoyment and adherence. Resistance training has been shown to increase bone mineral density, stimulate muscle hypertrophy, and promote weight loss (14). Pilates can be a great way to improve muscle endurance, flexibility, balance, and posture (3,6,11,12). This article will discuss how incorporating both resistance training and Pilates can improve flexibility in middle-aged women.

HOW RESISTANCE TRAINING AND PILATES IMPROVE FLEXIBILITY

Women's bodies are always changing, and the muscles age as the body does. The difference between women aging and their muscles aging is that when their muscles reach an age over 40, they stop growing and actually start to lose muscle mass. In other words, the muscles start to shrink instead of actually growing with the body. This happens to everyone, especially if the individual does not live a healthy, active lifestyle. The reason for this loss of muscle mass is because the muscle motor unit adjusts itself to the changes within the body (2). After a certain age, the motor unit stops growing so that it can concentrate on functioning correctly (2). This is where resistance training and Pilates can prove to be beneficial, especially for middle-aged women.

The decline in muscle function between maturity and old age is similar for the muscles of many different animals, including human beings, and is typified by decreases of approximately 35% in maximum force, approximately 30% in maximum power, and 20% in normalized force (4). There are ways to combat these negative changes, but it requires daily physical activity. By not being physically active, muscles will start to stiffen, and eventually they end up wasting away due to lack of use. This is called muscle atrophy. This condition is usually found in middle-aged adults. By adding Pilates and resistance training to weekly physical activity, it can benefit middle-aged women as they are both sound techniques to keep the blood flow to the muscles, which may decrease the chance of the muscles stiffening beyond repair.

THE BENEFITS OF RESISTANCE TRAINING EXERCISES

Resistance training has many benefits for one's everyday lifestyle and the functional capability of the body. The straight-leg raise is an example of an exercise that focuses on the hip abductors and the hip extensors. The front squat is an example of an exercise that concentrates on the core and lower body muscles, and assists in building stability and mobility in the knees, hips, ankles, shoulders, and core. This particular exercise can help improve flexibility and range of motion (ROM) of the hip flexors and hip musculature. Improving flexibility in the hips can create an energetic shift or release as well. There are over 20 muscles that cross the hip (the collection of inner thigh muscles known as the adductors, the collection of outer thigh muscles known as the abductors, the hip flexors in front, deep lateral rotators in the back, and more), so movements that stretch any of these muscles could be beneficial for improving flexibility (15).

The shoulder press is an example of an exercise that can be used to help improve flexibility of the shoulders. This exercise activates the anterior and medial deltoids, triceps, and brachialis muscles. If a client has inflexible or tight shoulders, simple tasks can get in the way of everyday life. Research has proven that "the combination of resistance training and stretching appears to be the most effective method to improve flexibility with increasing muscle mass," (9).

THE BENEFITS OF PILATES

Pilates is a method of exercise that focuses on flexibility, muscular strength, and endurance. In an article written in the *Asian Journal of Sports Medicine*, the authors state "the concept of Pilates exercise focuses on flowing movement throughout the whole body. The intensity of movement is the final range of motion at a tightness point without discomfort," (11). The full movement potential of a joint is usually its range of flexion and extension (10). According to the American College of Sports Medicine (ACSM), to improve ROM, 2 – 3 sessions per week for at least 3 – 4 weeks should be used (1). During the training sessions, each exercise should include 2 – 4 repetitions in which a stretch is held between 10 – 30 s and 30 – 60 s in older individuals with a goal of accumulating 60 s of stretch across 2 – 4 repetitions (1). By practicing, Pilates can strengthen the core musculature, increase flexibility, and keep joint movements smooth (14,15). The areas that Pilates exercises primarily target include the core, legs, gluteals, and back. One of the best reasons to practice Pilates is to improve flexibility, and many of the exercises can be practiced at home. Most Pilates exercises are bodyweight exercises, making them practical for people on the go. A study that was conducted by a college in Minnesota demonstrated that "individuals can improve their muscular endurance and flexibility using relatively low-intensity Pilates exercises that do not require equipment or a high degree of skill and are easy to master and use within a personal fitness routine," (8).

There are many exercises in Pilates that can be used for improving flexibility. For example, the core plank position is an exercise that targets flexibility and body posture. The double-leg stretch is a Pilates exercise that targets the core. It requires both strength and endurance. The double-leg stretch challenges the ability to keep the torso in control and helps improve flexibility in the upper body.

The side plank exercise is a well-known Pilates exercise that requires core strength, and involves the muscles around the spine and pelvis. If looking for improved core stability, performing the side plank exercise is a must as it also targets the upper extremities, back, and core. Sekendiz, et al. concluded that "the importance of training the core abdominal and lower back muscles to stabilize the torso and allow the whole body to move freely was recognized. This method inspired other exercises to reach the desired level of the muscular strength and flexibility on simple equipment such as mats," (15).

IMPROVING FLEXIBILITY REDUCES RISK OF DISEASE

Most people do not realize that improving and maintaining flexibility may help decrease the chances of getting diseases. In an article written by Health Care for Women International, it states that, "muscle weakness and poor trunk flexibility are closely related to some chronic diseases in women," (7). The chronic diseases mentioned include asthma, arthritis, strokes, diabetes, and heart disease. It is very important to take care of the body in an attempt to prevent many of these chronic illnesses. Some may have genetic causes, but eating healthy and being physically active may prevent one of these chronic illnesses.

The following are six exercises that can be included in a comprehensive training program to help improve flexibility in middle-aged women:

PILATES EXERCISES

FIGURE 1. CORE PLANK POSITION

The core plank position exercise recruits one or more large muscle areas (transversus abdominis muscle, gluteus medius, and gluteus minimus muscles [hip abductors], the adductor muscles of the hip, and the external and internal obliques). This exercise uses another level of progression by incorporating a stability ball. To perform this exercise one should lie face down and place their forearms on top of the ball at a 90 degree angle for stability, fully extend the legs for lower body support, and keep the back in a neutral position. Start with 20 s and progress up to 1 min for 2 – 3 repetitions.

FIGURE 2. DOUBLE-LEG STRETCH

The double-leg stretch is a slow stretch for soft tissues (e.g., skin, tendon, joint capsule) and muscles (e.g., transverse abdominus). To perform the exercise, the client should lie on floor facing up and extend both arms over the head with both legs fully extended and raised off the floor. From this position, curl up the torso towards the feet, keeping the chin tucked. Once curled up, grasp the shins for a moment before returning to the starting position in a controlled manner. One set of 10 repetitions is recommended.

FIGURE 3. SIDE PLANK

The side plank can improve lateral torso control and shoulder strength (transversus abdominis muscle, gluteus medius and gluteus minimus muscles [hip abductor], adductor muscles of the hip, external obliques, internal obliques, and deltoids). Begin seated on the right hip with the knees slightly bent, resting the torso on the right elbow. The legs should be stacked on top of each other, but to assist with balance, the feet can be staggered about hip-width apart. If the top leg is forward, it will help keep the hips stacked. From this position, the hips should be raised to create a straight line from the ankles to the head. Start with 20 s on each side and progress up to 1 min for 2 – 3 repetitions.

RESISTANCE TRAINING EXERCISES

FIGURE 4. STRAIGHT-LEG RAISE

The straight-leg raise exercise activates the hip abductors (gluteus maximus, gluteus medius, gluteus minimus, and tensor fascia latae), and hip extensors. To perform this exercise, the client should lie down on their side and raise the top leg about 30 degrees. As more strength and flexibility is developed, a resistance band may be added to increase the challenge. Individuals should begin with three sets of 8 – 12 repetitions.

FIGURE 5. FRONT SQUAT

The front squat exercise activates the core and lower body muscles. This exercise requires significant mobility and stability in the hips, knees, ankles, shoulders, and core (quadriceps, gastrocnemius, gluteus maximus, rectus abdominus, and external obliques). To perform the front squat, hold the chest up and out, tilt the head up slightly, position the feet shoulder-width apart, and keep the back in neutral alignment. Allow the hips and knees to slowly flex while keeping the torso-to-floor angle relatively constant. As the client develops strength, weight may be added or a resistance band can be used, as seen in Figure 5. Individuals should begin with three sets of 8 – 12 repetitions.

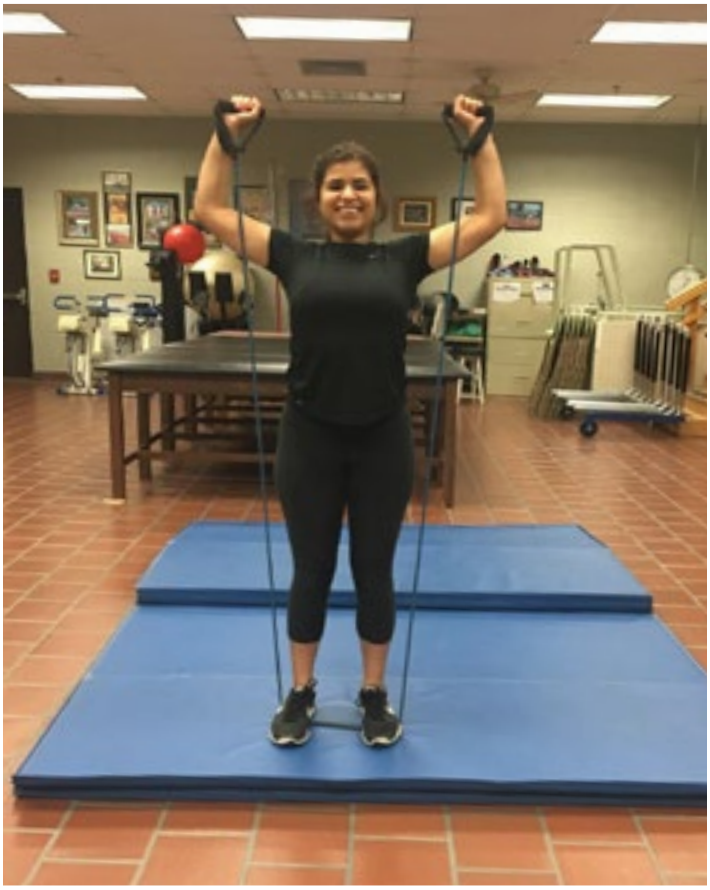

FIGURE 6. SHOULDER PRESS
The shoulder press is an exercise that activates the anterior and medial deltoids, triceps, and brachialis muscles. The client should maintain the five-point body contact position if in seated position, otherwise remain in a standing position keeping the back in a neutral position with both feet flat on the floor, or standing on a resistance band. This exercise can also be performed with two dumbbells, using a pronated grip. From the starting position, press the handles upwards and slightly inwards until full extension of the elbows and shoulders are reached. If starting with light resistance, individuals should begin with three sets of 8 – 12 repetitions.

CONCLUSION

When combining resistance training and Pilates into a comprehensive exercise program, the middle-aged woman can substantially improve, and potentially reverse, various physical and physiological responses to aging. It is critical for middle-aged women to push past the idea of what they often perceive as the "inevitable and uncontrollable," and focus on trying to diminish their progressing physical limitations.

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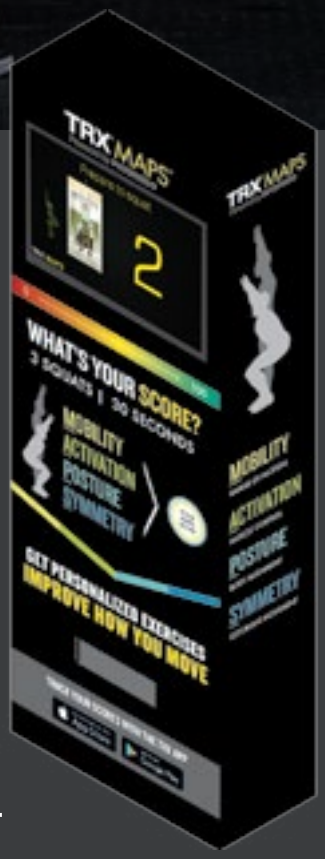

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EXERCISE PROGRESSIONS FOR OLDER ADULTS

JAMIE NESS, MS, CSCS

INTRODUCTION

What constitutes an older adult is not well defined. The American College of Sports Medicine (ACSM) recognizes that "in most cases, 'old age' guidelines apply to individuals aged 65 years or older, but they can also be relevant for adults aged 50 – 64 years with clinically significant chronic conditions or functional limitations that affect movement ability, fitness, or physical activity," (2). What is widely agreed upon is the fact that aging does impede the physical abilities of the older adult. "With advancing age, structural and functional deterioration occurs in most physiological systems, even in the absence of discernable disease. These age-related physiological changes affect a broad range of tissues, organ systems, and functions, which, cumulatively, can impact activities of daily living and the preservation of physical independence in older adults," (2). Therefore, it is logical to assume an older adult with a deteriorating body could require more methodical progressions than those of younger clients.

Despite the unavoidable degradation of the body, exercise appears to have a positive effects for this population. The ACSM states, "there is evidence that regular exercise can minimize the physiological effects of an otherwise sedentary lifestyle and increase active life expectancy by limiting the development and progression of chronic disease and disabling conditions. There is also emerging evidence for significant psychological and cognitive benefits accruing from regular exercise participation by older adults," (2). The ACSM goes on to recommend, "ideally, exercise prescription for older adults should include aerobic exercise, muscle strengthening exercises, and flexibility exercises. In addition, individuals who are at risk for falling or mobility impairment should also perform specific exercises to improve balance, in addition to the other components of health-related physical fitness," (2).

While older adults are not a homogenous group, they do generally have different goals, expectations, and limitations than their younger counterparts. Working with the older population requires patience and sometimes creativity. Most clients and personal trainers alike would prefer not to simply use selectorized machine weights at all times. These machines can be of great help when working with older adults, but this article is meant to help personal trainers progress their clients without total reliance on some certain equipment. While this article is not meant to be an all-encompassing guide, it may be helpful for personal trainers who are attempting to progress older adults through basic exercises. These basic progressions are meant to be manageable for this special population while staying within recommended parameters. Older adults should always be cleared medically before beginning an exercise program and if there is any question about the safety or efficacy of a particular exercise, proper medical personnel should be consulted.

SAMPLE EXERCISES

NECK

The forward head position, in which the occiput (back of the head) is held close to the seventh cervical vertebra, potentially produces short, strong neck extensors, and long, weak neck flexors (6). This postural fault is common among older adults and can cause difficulty with basic exercises, such as crunches. Placing a small pillow under the head allows the older adult to relax those weak muscles and stops the neck flexors from becoming the limiting factor for improving abdominal strength (Figures 1 and 2). To improve neck strength, practice neck flexion while seated on a bench with a back rest inclined to 60 degrees or more (Figures 3 and 4). As strength improves, lower the bench until it is flat.

FIGURE 1. CRUNCHES WITH SUPPORT PILLOW

FIGURE 2. CRUNCHES WITH SUPPORT PILLOW

FIGURE 3. NECK FLEXION

FIGURE 4. NECK FLEXION

SHOULDERS

Older adults often have a difficult time executing the correct motion when attempting shoulder exercises. It can be very helpful for older adults if the personal trainer uses their hands as targets for overhead presses and YTI shoulder movements (Figures 5 and 6). As the older adults improve, the personal trainer should keep challenging them for a bigger range of motion (ROM) by moving their hands to harder to reach positions.

FIGURE 5. OVERHEAD PRESS WITH TARGET

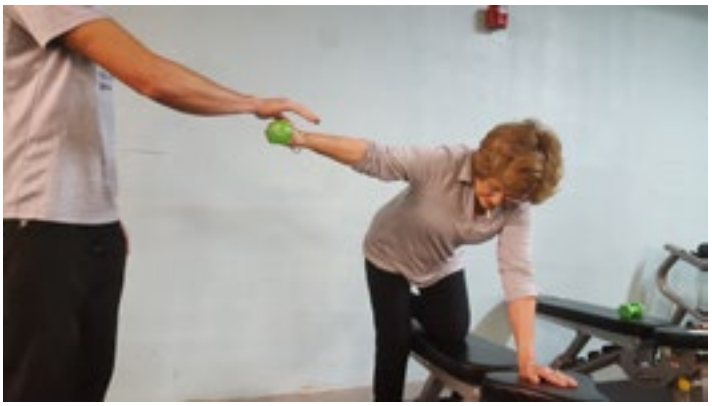

FIGURE 6. YTI WITH TARGET

PUSH-UPS

Push-ups are likely already in most personal trainers' training repertoire. However, it is recommended to teach this movement from the ground up when working with older adults. Oftentimes, when starting from an up position, many older adults will hunch their shoulders and complete a very small ROM. To avoid this, the personal trainer should have the older adult lay flat on their stomach with their palms on the floor and the elbows back (Figure 7). Then, the older adult should press through their palms.

FIGURE 7. STARTING POSITION FOR MODIFIED PUSH-UP

Of course, push-ups can also be done against a wall. To do this, the older adult keeps weight on the balls of their feet and simply presses against the wall (Figure 8). As the older adult progresses, the personal trainer can use a Smith machine or other stable platform that allows for the appropriate position to slowly lower them toward a flat position (Figure 9). Using this method, the older adult places their hands at shoulder-width on the bar and keeps some weight on the balls of their feet.

FIGURE 8. WALL PUSH-UP

FIGURE 9. PUSH-UP ON SQUAT RACK

PLANK

To accommodate older adults who cannot do a regular plank, they can simply elevate the shoulders higher than the toes to perform a modified plank. The higher the elevation, the longer the older adult can hold the plank position. A good position to start with involves the forearms being on a bench and their toes on the floor (Figure 10). The older adult should be able to perform the plank from a flat position once they can hold the elevated position for 3 – 5 sets of 45 – 60 s. However, with a little creativity, a personal trainer could use many intermediate levels of elevation before progressing to a standard flat plank position.

FIGURE 10. ELEVATED PLANK

DEADLIFT

The older adult begins with a small dumbbell or medicine ball on an elevated surface, such as an aerobics step. If using a dumbbell, place it in a vertical position where it rests on the bottom head, allowing the older adult to grip the top head with both hands (Figure 11). Once technique is mastered, the level of elevation can be lowered until a step is no longer needed (Figure 12). Continue increasing the weight of the dumbbell until a barbell can be used. When first transitioning to a barbell, it might be necessary to raise the initial bar height by placing weight plates underneath the loaded barbell.

FIGURE 11. ELEVATED DUMBBELL DEADLIFT

FIGURE 12. DUMBBELL DEADLIFT

SQUATS

To perform these modified squats, use a bar on a Smith machine or some other stable implement for support. Have the older adult hold onto the bar while reaching back with the hips throughout the entire descent (Figure 13). The older adult should focus on reaching back with their hips, keeping their weight on the heels, the knees over the ankles, and an erect torso. They should also use a lighter touch on the bar as they become more competent with the movement. Eventually, the older adult can remove one and then both hands.

Alternatively, or concurrently, a plyometric box or bench can be used to improve strength and improve specific components of squat technique (Figure 14). The box or bench provides safety, comfort, and a standard of descent depth to the older adult. Begin with a high bench or box; the beginning height can be increased by adding weight plates to the surface of the bench or box. The personal trainer should have the older adult sit, stand, and repeat, while encouraging proper squat mechanics. Once technique is mastered, the surface can be lowered by finding a smaller bench or box, or by removing weight plates. Once the level of descent is sufficiently low, and the older adult demonstrates adequate strength, the personal trainer should instruct them to only tap the surface rather than sitting on it. Eventually the bench or box can be removed.

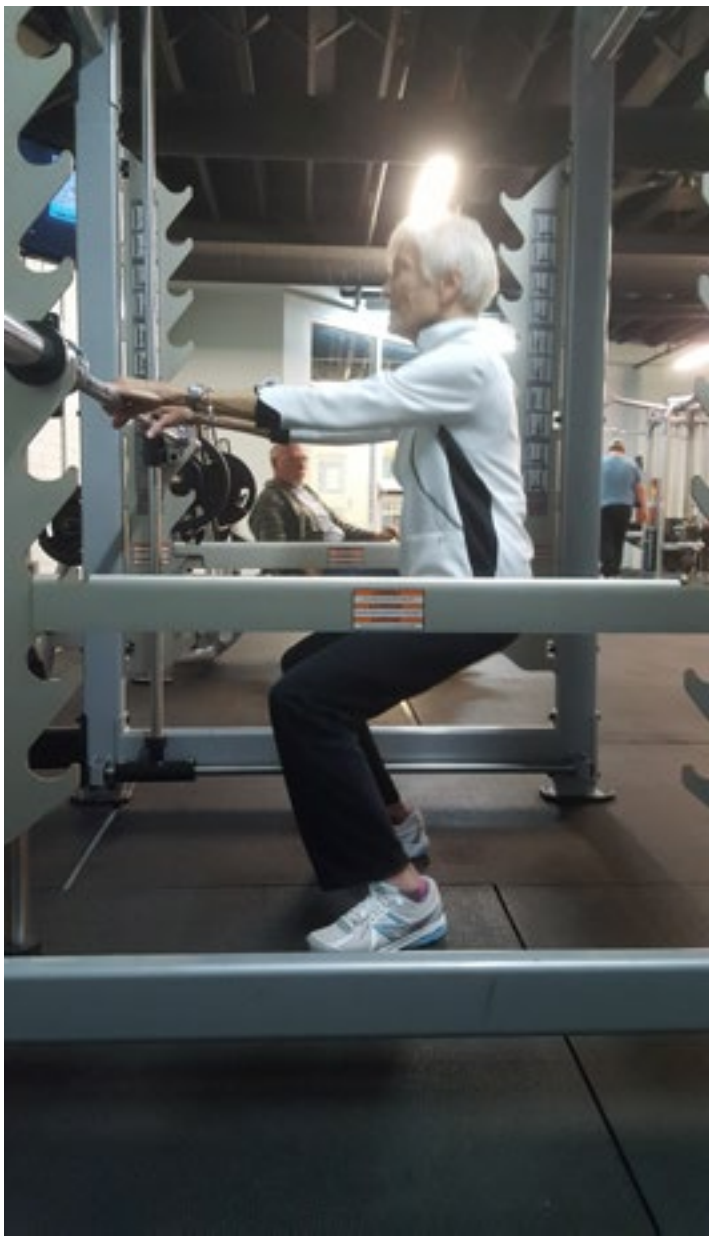

FIGURE 13. SQUAT USING A BAR FOR ASSISTANCE

FIGURE 14. SQUAT USING A BENCH FOR ASSISTANCE

BALANCE, COORDINATION, AND AGILITY

It is well known that balance, coordination, and agility training can reduce risks of falls for older adults (1,3,5,7). However, this kind of training can also have psychological benefits; older adults' balance confidence could improve as well (4). This confidence, or freedom from the fear of falling, could allow for more exercise options and more active lifestyles.

Older adults may be surprised to find that just moving the ankle joint in all directions is difficult, so it is a good place to start when working on balance. The personal trainer can have the older adult invert, evert, plantar flex, dorsiflex, and rotate the ankle in clockwise and counter clockwise directions. Resistance might not be necessary at first, but eventually bands can be used to make it more challenging. Next, the personal trainer can have them walk a straight line that is clearly marked. Once they are steady while walking forward, they can be further challenged to walk a straight line backwards. The personal trainer should always be ready to assist or catch the older adult when they are moving backwards. For more stationary balance, they can keep one foot planted while the other foot reaches around the body, as if creating a circle of invisible dots. As the circle gets bigger, the exercise becomes more challenging.

Perhaps the most common way to work on balance is standing on one foot. The older adult may wish to use a nearby wall or another object to provide stability at first. The personal trainer should encourage the older adult to use as little help as possible until they can stand freely on one foot. Once this is mastered, arms and legs can be moved in different directions to change the center of mass (COM). Then adding small dumbbells or weight plates can further challenge the older adult (Figure 15). Once these exercises are mastered on solid ground, the process can be repeated while standing on a stability disc or with their eyes closed.

A stability ball can be used in a similar manner. The older adult can sit on the ball with one foot elevated. It may be useful to place the stability ball between two benches and have the spotter behind the older adult to prevent falling (Figure 16). The older adult might have to start with their hands on the benches or on the ball. Once the older adult is competent sitting without using their hands, the can move their hands in different directions to change the COM. Additionally, their eyes can be closed to add a level of difficulty.

FIGURE 15. ONE FOOT BALANCE USING WEIGHT TO CHANGE CENTER OF MASS

FIGURE 16. STABILITY BALL BALANCE USING ARM MOTION TO CHANGE CENTER OF MASS

Once balance is established, the personal trainer can begin implementing agility and coordination exercises. Some suggestions for agility include shuffling and reaching exercises, agility ladder exercises (Figure 17), and cone drills. The personal trainer may want to try using medicine balls, bouncing balls, erratically bouncing balls, and games or sports activities to improve coordination (Figure 18). Before attempting agility and coordination activities, the personal trainer should make sure the environment is safe and the older adult is ready.

FIGURE 17. EXAMPLE OF AGILITY EXERCISE

FIGURE 18. EXAMPLE OF COORDINATION EXERCISE

CONCLUSION

Table 1 provides a sample workout for a beginning, intermediate, and advanced older adult. This table is for illustrative purposes only. Individuals may begin at the advanced level on some exercises, progress quickly with others, and still be unable to progress quickly in other areas. The personal trainer must be patient and only progress the older adult when competence has been displayed at lower levels. Depending on time constraints, personal trainers may want to continue some lower level exercises even if the older adult has progressed to more advanced levels. For example, an older adult who masters elaborate drills with an agility ladder might still benefit from the most basic balance exercises.

Each older adult will have different needs and each personal trainer will have different resources, so progressing individuals will always take some degree of creativity. However, a consistent, methodical, and logical approach will likely lead to improved fitness and quality of life for older adults.

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TABLE 1. SAMPLE WORKOUT FOR OLDER ADULTS

EXERCISE	BEGINNER	INTERMEDIATE	ADVANCED
Neck flexion	Complete repetitions on bench at 60 degrees	Complete repetitions on bench at 30 degrees	Complete repetitions on flat bench
Overhead presses, YTIs, and other shoulder movements	Teach basic movement	Use hands as targets to extend the range of motion (ROM)	Continue to challenge ROM until the desired range can be achieved without targets
Push-up	Complete push-ups against a wall	Complete push-ups from the knees, starting from down position	Complete push-ups on a Smith machine, lowering the bar as strength increases until the bar is no longer needed
Plank	Hold plank position on a high bench. example: 3 sets of 25 s	Hold plank on lower bench, or aerobics step covered with an exercise mat for comfort; example: 4 sets of 45 s	Hold plank on flat ground; example: 3 sets of 60 s
Deadlift	Teach basic movement by lifting a medicine ball from an elevated surface such as an aerobics step	Lift a dumbbell standing on one end from the floor	As weight increases, teach the movement with a barbell
Squat	Start from a sitting position on a box and use a bar (Smith machine) to assist the ascent	Start from a standing position and merely tap the box on descent before rising (use a bar only as needed)	Free standing squats without the aid of a box or bar
Balance, coordination, and agility	Perform ankle movements without resistance and stand on one foot with assistance	Perform ankle movements with resistance bands, stand on one foot while changing center of mass with arm and leg movements, and sit on a stability ball with a foot elevated	Once balance is established, coordination and agility can be challenged; example: agility ladder drills, shuffling drills, and ball bouncing drills

ABOUT THE AUTHOR

Jamie Ness has been a personal trainer since 2013, and currently works independently in Winchester, KT. While Ness works with all ages, he has found a niche with the older adult population. Ness holds a Master of Science degree in Kinesiology and Health Promotion from the University of Kentucky and the Certified Strength and Conditioning Specialist® (CSCS®) certification from the National Strength and Conditioning Association (NSCA).

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