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ACSM’s RESOURCES FOR THE HEALTH FITNESS SPECIALIST

By Gary Liguori, Ph.D., FACSM, and Teresa Fitts, D.P.E., FACSM, ACSM-HFS, EIM-II

ACSM’s RESOURCES FOR THE HEALTH FITNESS SPECIALIST (HFS) TEXT WAS DEVELOPED TO ASSIST STUDENTS AND FACULTY IN HFS CERTIFICATION EXAMINATION PREPARATION, AS WELL AS TO PROVIDE A REFERENCE FOR CURRENT PRACTITIONERS INTERESTED IN REVIEWING UPDATED RESEARCH AND PRACTICES.

The text is based almost exclusively on the job task analysis (JTA) conducted by the Committee on Certification and Registry Boards (CCRB), and divided into four distinct sections mirroring the HFS scope of practice domains: 1) Assessment and Programming for Apparently Healthy Populations; 2) Assessment and Programming for Persons with Special Conditions; 3) Exercise Counseling and Behavioral Strategies; and 4) Legal/Management and Professional Issues. Reflecting the recommendations from the newest edition of the ACSM’s Guidelines for Exercise Testing and Prescription (GESP 9), this text provides readers with a clear and concise overview of the practices most relevant to the HFS. The chapter authors, as content experts, also provide extensive references to relevant research.

This resource is the first ACSM text wholly dedicated to the HFS. The content reflects the changing nature of the fields of exercise and health science and the shifting role of the HFS as a facilitator of motivation and behavior change coach as well as an administrator, manager, and supervisor of health fitness programs and facilities. The chapters in the exercise counseling and behavior change section not only review current theories and models relating to behavior change but also provide content relating to evidence-based practices utilized in the field such as motivational interviewing and the evaluation of outcome expectations. In addition, the chapters dedicated to legal, management, and professional issues provide context and context for the HFS from both management and marketing perspectives. Selected theories of leadership are described to provide an overview of the historical aspects of management practices. Understanding the distinct scope of practice and ethical considerations of the HFS are also presented to give practical and applicable tools for the future professional as well as practicing HFS. The chapters on special populations provide the necessary resources for the HFS to work safely and effectively with these unique populations.

In addition, ACSM’s Resources for the Health Fitness Specialist offers several unique characteristics, which help to make it an even more useful tool. Real life case studies are included in each chapter to emphasize the practical usefulness of the text, with each being submitted by practicing HFS. A series of “How To” boxes provides detailed, hands-on information for conducting assessments, implementing interventions, creating templates, and more. An Exercise is Medicine® (EIM) connection gives practitioners and students preparing for certification a context to further understand and explore the important role exercise can play in mediating certain health concerns.

Ultimately, ACSM’s Resources for the Health Fitness Specialist is the authoritative text providing evidence-based content and relevant application to assist individuals preparing for the certification examination as well as current practitioners seeking a compendium of information specifically designed and tailored to the unique and ever-changing world of the HFS.
Exercise practitioners can enhance their knowledge of human anatomy by obtaining practical information from the University of Michigan Medical School Anatomy: Medical Gross Anatomy course site. Information, tips, and tools obtained from lessons and reviews on this site can be immediately applied toward developing safe, effective exercise programs. Viewers of this site can access the Human Anatomy Course Lab Manual and a number of course resources within it for free. The Medical Gross Anatomy tab/section contains an “Additional Resources” section that enables viewers to learn about or to review information on radiology, surface anatomy, and to watch surgical videos. The main portion of the “Medical Gross Anatomy” tab/section is divided into sections addressing the following body systems:

- Musculoskeletal System I
- Cardiovascular and Respiratory Systems
- Musculoskeletal System II
- Gastrointestinal System
- Endocrine and Reproductive Systems
- Nervous System

After selecting the desired body system(s), visitors can access information from the following tabs at the top of the screen:

- Dissector Answers — Answers to pre-dissection quiz questions are given here with brief summaries
- Review Items — The entire system and key structures and terms appear in outline format
- Lab Video — Guided, narrated anatomical video dissections provide clear, easy to follow descriptions of the designated body system
- Anatomy Tables — Provide concise descriptions of locations, origins, insertions, functions, related arteries, veins, fascia, and medical terms.
- Practice Quiz — Provides a series of questions written in a problem solving and case study format. Viewers can immediately access answers given in an annotated manner to synthesize key concepts

Information within this site also can serve as review material for persons preparing for the American College of Sports Medicine (ACSM) certification and registration examinations. The University of Michigan Medical School Anatomy: Medical Gross Anatomy Course site is easy to navigate through and readers interested in obtaining more information can access it at: www.med.umich.edu/lrc/coursepages/ml/anatomy2010/html/index.html

Authentication and an individual account and login ID are required in order to view some portions of and features within the University of Michigan Medical School Anatomy: Medical Gross Anatomy Course site.

Those interested in setting up a friend account for guest access can do so by contacting the University of Michigan Information Technology Services at http://www.itcs.umich.edu/itcsdocs/s4316 for directions and instructions.

About the Author

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References

Part one of this article series provided an overview of a number of theories which describe the process of behavior change. Understanding these theories may give the exercise professional (EP) insight for coaching a client to make lifestyle changes such as participation in physical activity. However, no one theory “fits” each situation, and the EP may need to draw ideas from a number of theories to individualize an exercise program. One client may be in a contemplative stage regarding readiness to exercise and not ready to move into action; another may be ready for action but not have the self-efficacy to overcome barriers and follow through on intentions. It’s not enough to ask about a client’s readiness to change or barriers to exercise and then, disregarding those concerns, proceed with one’s own agenda of telling the client how to exercise. The EP needs to tailor the guidelines to each individual using client-centered counseling techniques.

Client-centered counseling means that the client becomes an active participant in the discussion about behavior change rather than a passive recipient of directions on what must be done. As the counselor/coach, the EP provides a supportive, non-judgmental environment; shows empathy for the client’s concerns and frustrations; and, practices active, reflective listening while working with the client to design an individualized program addressing that individual’s specific needs. Two approaches which have been applied in the process of counseling for behavior change are the Five-As Model and Motivational Interviewing. The purpose of this article is to provide a brief description of guidelines and techniques which characterize

**Five-As Model of Counseling**

1. Address the health/fitness agenda
2. Assess client readiness
3. Advise plan of action
4. Assist in exercise prescription
5. Arrange for a follow-up
these two models, showing how they may be used to help clients build self-efficacy and readiness for physical activity participation.

THE FIVE-As MODEL

The Five-As model for counseling outlines a series of steps for working with an individual who is contemplating behavior change.1

The first step is to Address the Agenda. In an exercise consult, the EP asks the client what he hopes to gain from the meeting; i.e., find out the client’s goals. Step two is to Assess. The EP asks open-ended questions to determine the client’s readiness to change, fears, and feelings about exercise, possible barriers to exercise, exercise history, motivation for exercise, reasons for starting an exercise program. The third step is to Advise the client. This does not mean telling the client what he must do. Instead, the EP shows that she has been listening to the client’s concerns, and describes how an appropriate program of physical activity will provide a means for meeting the goals or reducing risk factors that were discussed in the “agenda” step. The EP can personalize the message that participating in an exercise program is a good idea. Next, Assist the client in forming the plan to meet the goals. This is the step where the exercise prescription is formed. The EP describes a number of physical activity options and then asks the client which of these is most appealing. Bring up the barriers identified in the assessment phase; help plan for strategies to address those barriers. Suggest options while encouraging the client to decide what he thinks will work best. Finally, Arrange for follow-up. After reiterating the activity plan and confirming that both parties agree on what the plan is, the EP schedules a follow-up appointment. This meeting provides an opportunity to offer support and to make any necessary adjustments in the original plan.1

MOTIVATIONAL INTERVIEWING

Motivational Interviewing (MI) is another client-centered approach to counseling for behavior change. It has been used very effectively in the field of addictions counseling as well as in the field of health promotion.3,4 The origins of this strategy recognized that people are often “ambivalent” about behavior change, i.e., they want to make changes, yet they don’t want to change. Because people often have an inherent resistance to change, if someone tells them what they “must do” the natural response is to dig in their heels and say “make me.”3 Rollnick et al.6 outline the tasks for using MI in behavior change counseling: establish rapport, set an agenda, assess importance, and build confidence (as part of readiness). All this is done through an exchange of information in a way that reduces resistance. As with the Five-As model, this outline stresses the use of empathetic, reflective listening. By leading a non-judgmental conversation in which the client is encouraged to talk about pros and cons, fears and feelings about change, the practitioner tries to “elicit change talk” (change talk = client speech that favors movement in the direction of change) and “reduce resistance” (resistance = arguments that favor maintenance of the status quo).6 Effective communication with the client encourages talk about reasons for changing behavior. By allowing the client to have the autonomy to decide whether or not to make a change, readiness and commitment for change improves.5

Miller2 suggests that while it is tempting to label the ambivalent client as “unmotivated,” it may be that this person is simply not ready for change. For example, compare the situations of two clients: Joe and Suzy. Joe was referred to start an exercise program to control his high blood pressure. He voices a high level of confidence in his ability to participate in an exercise program, saying he could start any time—if he wanted to. However, he’s not convinced that it will be beneficial for lowering his blood pressure (“my whole family has high blood pressure, they just take pills to control it”) and so ascribes a low level of importance to making this behavior change. Suzy, on the other hand, comes to the EP with her annual New Year’s resolution of joining an exercise class and losing weight. She is completely convinced about the importance of starting an exercise program, knowing that it produces a myriad of health benefits, but has low confidence in her ability to stick with a program because she has “started up every January but never lasted more than two weeks.” Neither of these clients is ready for changing behaviors—but for totally different reasons. Rather than proceeding with an action plan for behavior change, the EP should focus conversation on increasing readiness for change.

Effective use of MI as a counseling method requires training, practice, and time.7 However, Rollnick’s “change rulers” provide a simple means of applying the spirit of MI in a practical setting.8 The “change rulers” provide a strategy for eliciting change talk by assessing the roles of importance and confidence (self-efficacy) in a person’s readiness to change. In the example above, the EP would ask Joe, “On a scale of one to ten, where one is not important at all and ten is extremely important, how important is it for you to start an exercise program?” Listening to Joe’s response, the EP follows up by asking, “Why are you at ____ and not at one?” and “What would it take for you to get to a higher number?” When Joe responds with his ideas (change talk) the EP reflects back: “So it sounds like exercise would be more important if ____...” Similarly, using the ruler to identify Suzy’s level of confidence for exercise, the EP asks what it would take to increase that confidence level. Suzy says she is so out of shape that she can only exercise for ten minutes before she gets tired; she wants to exercise but would be more confident if she could exercise longer. The EP responds “You get tired if you try to exercise too long, and 30 minutes does sound like a long time...” (empathetic, reflective listening) “…but you can exercise for ten minutes at a time.” (This non-judgmental statement supports Suzy’s change talk and helps build self-efficacy by reinforcing mastery through verbal persuasion):7

Some people start by exercising 10 minutes at a time and do this 2 to 3 times per day; or exercise for 10 minutes and then add 1 minute each day. What do you think? The EP reduces resistance by providing information, but not telling Suzy what she must do. Suzy has autonomy as the decision to try this technique—or not—is hers. As Suzy hears the EP repeat her own ideas for increasing confidence, and is given the autonomy to decide whether or not to accept the suggestion regarding her exercise plan, she is more likely to take ownership of the ideas and reach a higher level of readiness to change.8

SUMMARY

Coaching clients to make changes in behavior is a complex task influenced by a variety of factors. Evidence suggests that client-centered counseling is more effective than strict advice-giving in helping someone initiate and maintain lifestyle changes.1 In the words of

Counseling (continued on page 13)
IN A WELL-PUBLICIZED 2010 INCIDENT, HOLLYWOOD WRITER-DIRECTOR KEVIN SMITH WAS FORCED OFF A SOUTHWEST AIRLINES FLIGHT BECAUSE HIS OBESITY WAS JUDGED A “SAFETY RISK” TO PASSENGERS. SINCE THEN, OTHER STORIES HAVE BROKEN REGARDING BIAS AGAINST THE OVERWEIGHT IN EDUCATION19 AND WORKPLACE20 SETTINGS. IN RESPONSE TO DISCRIMINATION COMPLAINTS, ORGANIZATIONS AND SUPPORT GROUPS HAVE BEEN FORMED TO DEFEND THE OVERWEIGHT. THESE ALLIANCES PROMOTE WHAT HAVE BEEN TERMED, “FA T RIG HTS” AND THEY OFTEN CHALLENGE THE HEALTH AND WELLNESS PHILOSOPHIES TO WHICH CERTIFIED PROFESSIONALS SUBSCRIBE.

What then is an appropriate response to complaints of discrimination against people who are overweight or obese? What are some guidelines for fitness professionals to follow on the issue of fat rights? The purpose of this article is to address these questions and prompt readers into fresh thinking about weight bias.

A SHORT HISTORY OF FAT RIGHTS

The issue of “fat rights” is not new. Fat activism began in the U.S. during the late 1960s with protests against fat discrimination. The 1960s also launched the National Association to Advance Fat Acceptance (NAAFA). California-based NAAFA was founded in an effort to “eliminate discrimination based on body size and provide fat people with the tools for self-empowerment though public education, advocacy, and support.” Federal anti-discrimination legislation based on weight also has been proposed by NAAFA.

Another prominent fat-rights organization, the Florida-based Obesity Action Coalition (OAC) claims to be the only non-profit organization whose sole focus is “helping individuals affected by obesity through education, advocacy, and support.” The OAC publish-
es the free online *Your Weight Matters* magazine with science-based articles that would be palatable to most fitness professionals.

Other fat-rights organizations today include the Yale University-based Rudd Center for Food Policy & Obesity\(^1\) (founded 2005) which is a non-profit research and public policy organization working to reduce the stigma of weight while preventing obesity. Moreover, there is at least one emerging fat rights organization in the blogosphere called "The Fat Rights Coalition,"\(^4\) advocating fat rights and promoting the fat rights movement online.

If there is a mutual philosophical theme among these associations and the fat rights movement, it is the belief that it is morally, legally, and even scientifically wrong to segregate people on the basis of their body “fatness.” Certainly the science part of this view challenges what many fitness professionals have been taught. For example, obesity has been identified as a positive risk factor for the development of cardiovascular disease\(^1\) which remains the number one killer of U.S. adults. However, might it be possible that fitness professionals consequently possess such an aversion to fatness that the obese person suffers undue discrimination? The following section offers examples of how that might be the case.

**Is the Fat Rights Movement Justified?**

At first glance, one might conclude that the fat rights movement is not justified from a health sciences perspective. For example, data from a Johns Hopkins University study\(^2\) showed that the quality of the patient-provider relationship did not vary by weight status of the patient. Further, in a review \(^3\) of papers published from 1990 to 2007 on the subject of fat bias among health professionals, Geraldine Budd and her colleagues concluded that attitudes among nurses, psychologists, obesity specialists, and dietitians did not affect health care delivery to obese patients. Budd, et al. even point out an 18-year trend toward improved attitudes concerning obese patients among these professionals suggesting that if fat bias exists in health care, it is subtle and on the decline even when it is exhibited.

In contrast, a recently-published study\(^12\) by CE Outcomes (Birmingham, AL) and the Northshore Research Institute (Evanston, IL) found little confidence in managing obesity among 148 family medicine and 145 internal medicine physicians. In fact, only 49.5% of physicians surveyed agreed that they could “help patients achieve a healthier weight.” Only 31.3% “felt confident in assisting patients with weight management.” Certainly, these data suggest opportunities for the fitness professional. What these data also suggest is that although health care providers may not be influenced by the weight of their patients when it comes to providing care, physicians do find the management of body weight to be challenging.

Reflect for a minute on your personal experiences with weight management. Do you see overweight and obesity in your clients only as problems to be fixed? Is the only positive outcome of weight management for you the loss of weight? Do you see weight gain only as a failure of psychological will and personal discipline? Do you avoid using the term “fat” with clients? Do you need some fresh insights on the management of weight in light of fat rights?

Affirmative answers suggest a potential focus on fatness rather than fitness which is something that many fat right activists want to change. Such a change in your practice with clients can be positive if you remember that different people have different goals and different comfort levels with their bodies. The following section suggests ways you might think about changing your focus.

**Guidelines for Fitness Professionals**

Fitness professionals may wish to consider the following points in an effort to more effectively promote public health among fat rights advocates especially when those advocates are clients.

Educate yourself on the issue of fat rights. Fat rights groups essentially want respect no matter the size or adiposity of the individual. This should be easy for certified professionals who are obligated to fulfill continuing education requirements anyway. Evaluating the ways you communicate with clients and providing exercise prescriptions that address client goals (not yours) are ways to demonstrate respect. Knowing when to listen attentively, fact-check assertions and questions, or even refer clients to other health care professionals are traits of good fitness professionals that work especially well in the fat rights debate.

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**The Exercise Professional’s View of a Client Should Never Be Defined by the Client’s Health/Fitness Challenges But Rather With the Appreciation That This Client Has Chosen a Certified Exercise Professional to Help Them Address Their Health/Fitness Goals!**

Stop seeing weight management as the end-all, be-all definition of physical fitness.

Long-term changes in body composition are hard to achieve. One 1992 to 1993 study found that within one year, one-third to two-thirds of weight lost is regained and almost all is regained within five years of initial loss.\(^10\) Weight management frustrations may predispose clients toward an interest in fat rights. Again, an effective strategy for dealing with this is to focus on fitness rather than fatness. Demonstrable progress in functional strength, aerobic capacity, and/or flexibility enhances physical fitness. Improved weight management is often a welcome byproduct of a focus on fitness. In fact, this is an important theme first articulated by Steven Blair and his colleagues at the Cooper Institute nearly 13 years ago when they published results of a literature review\(^7\) that found active obese individuals to have lower morbidity and mortality rates than normal weight individuals who are sedentary.

**Recognize Your Part in the Fat Rights Movement.**

In the 8th edition of ACSM’s *Guidelines for Exercise Testing and Prescription,*\(^1\) ACSM reminds certified professionals that the development of ACSM certifications was meant to enhance the provision of “scientifically sound advice and supervision regarding appropriate physical activities for health maintenance.” What this suggests is that
COACHING NEWS
By Margaret Moore (Coach Meg), M.B.A.

Mindfulness is being completely aware of the present moment.

• Take a moment to self-assess your current health/fitness status.
• Get in touch with what brought you to this current state.
• Set a goal that you can move toward in a positive, healthful manner.

Today we explore how to work with clients who have made New Year’s resolutions to lose weight and to get more physically fit. Of the 50% of people who make resolutions, fewer than 10% are successful. There is a lot of room for improvement.

A resolution to lose weight and get fit emerges at least in part from an unstable and negative source of motivation. Clients often have an impatient and demanding inner critic declaring something along the lines of: “YOU SHOULD LOSE WEIGHT. It’s about time you get this done. I can’t believe you have not done this already.” The inner critic attacks one’s self-esteem and self-worth, basically inferring – you are not good enough. Its intention is to generate fear as a motivator to get you off your butt and into the gym, while eating salads and healthier food. Unfortunately, fear of failing or of being a failure, is not an optimal source of motivation.

How do you help clients develop a robust start to their resolutions? Help them begin with self-compassion, which leads to a softer, kinder motivation that improves the brain’s ability to learn and change, and has been shown to improve the probability of success. Ten years ago, psychologist Kristin Neff, Ph.D., began to study self-compassion, leading to a growing body of research literature describing its benefits to mental health, management of emotional stress, and performance.

Kristin’s formula starts with mindfulness to notice and name the negative feelings that go along with being overweight and sedentary that you want to escape by losing weight. Suffer with these feelings for a few moments, instead of trying to push them away. Sadly, trying to push these emotions away is a temporary move as the brain doesn’t have the software to destroy negative emotions for good. These emotions will inevitably come back to bite you. The only way to get past negative emotions is to work through them.

Then, help your clients feel a connection with humanity. “You are not alone, many others are suffering with excess weight.” Negative emotions do not want to be alone, they want company, to feel connected, and fortunately when it comes to weight loss, people are not suffering alone.

Next is to help your clients be kind to their negative feelings. The biological method for soothing the scared emotions of a newborn is the tender soothing by its parents, releasing a neurochemical called oxytocin,
PHYSIOLOGICAL FACTORS THAT AFFECT MUSCLE AND STRENGTH DEVELOPMENT

By Wayne L. Westcott, Ph.D.

The American College of Sports Medicine has established general guidelines for increasing muscle size and strength through programs of progressive resistance exercise. These well-researched strength training recommendations call for:

- 8 to 10 different exercises per training session to cumulatively address all of the major muscle groups;
- an exercise resistance that can be properly performed for 8 to 12 repetitions;
- 2 to 4 sets of resistance exercise for each major muscle group;
- controlled movement speed and full movement range;
- 2 to 3 non-consecutive days of resistance exercise on a weekly basis.

These are excellent strength training guidelines that are especially applicable to beginning exercisers. Assuming an even playing field for previously untrained resistance program participants, we might expect similar rates and levels of muscle and strength development from those who follow these standard exercise guidelines. However, most fitness professionals can attest that this is not always the case. Some new trainees add muscle and gain strength quickly, whereas others add muscle and gain strength slowly. Although personal characteristics such as motivation, exercise effort, sleep habits, and daily nutrition play a role in the training outcomes, inherent physiological factors also affect muscle and strength development. Two of these genetically determined factors are basic body type and motor unit make-up.

Basic Body Type
During the 1970s, 1980s, and 1990s, it was common for exercisers to identify themselves as one of four basic body types (see Figure 1). Understanding these classifications can help you tailor your training program to better suit your body type. For example, if you are an Endomorph, you may need to focus more on cardiovascular training and less on resistance training. If you are an Ectomorph, you may need to focus on increasing muscle mass to improve your overall physique.

Figure 1. Four basic body type classifications based on relative number of muscle cells and fat cells.

<table>
<thead>
<tr>
<th>FAT</th>
<th>CELLS</th>
</tr>
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<tbody>
<tr>
<td>HIGH</td>
<td>Endomorph (High Fat/Low Muscle)</td>
</tr>
<tr>
<td>LOW</td>
<td>Ectomorph (Low Fat/Low Muscle)</td>
</tr>
<tr>
<td>LOW</td>
<td>Mesomorph (High Muscle/Low Fat)</td>
</tr>
<tr>
<td>HIGH</td>
<td>Musclemorph (High Muscle/Low Fat)</td>
</tr>
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Muscle Cells

(continued on page 12)
HEALTH DANGERS OF SITTING

By Gregory B. Dwyer, Ph.D., FACSM

Most of us sit more than 10 hours a day for long stretches of time.

Like many of you, I completed a great workout this morning. Now it’s time to get to work, which involves sitting at my desk most of the business day. We all know that it is helpful to exercise regularly; we “preach” this to our patients/clients. Recent surveys and studies show that increases in the sedentary practices such as sitting and/or screen watching can be harmful to our health. Perhaps most surprising is that these sitting and watching behaviors are damaging to our health even if we are physically active for other parts of the day.

Recent reports from the National Institute of Health reveal the negative consequences of sitting in our society; most of us sit more than 10 hours a day for long stretches of time. In addition, screen viewing time has increased to more than 3 hours each day. A recent presentation at the 2012 American Heart Association meetings demonstrated that increases in fat deposition (especially around the heart or pericardium) was linked to the number of hours that a person sat each day.¹

An article in the British Medical Journal in 2012 by Peter T. Katzmarzyk, Ph.D., FACSM, and I-Min Lee, M.D., FACSM, reported on the epidemiology of sedentary behaviors and life expectancy using the meta analysis statistical review technique. They found five research abstracts that can be used in this meta analysis to suggest in the population that limiting sitting to less than 3 hours each day may increase life expectancy at birth by 2 years while limiting TV/screen viewing to less than 2 hours each day may increase life expectancy by 1.4 years.²

A recent survey reported in 2011 using data from 20 countries around the world found a median of 300 minutes (5 hours) each day of sitting. The lowest values for sitting (≤ 180 min/day) were found in the countries of Portugal, Brazil, and Columbia while the highest values (≥ 360 min/day) were found in countries of Taiwan, Norway, Hong Kong, Saudi Arabia, and Japan.¹ In addition, television viewing...
has been found to decrease life expectancy at birth by 1.8 years in men and 1.5 years in women.\(^5\)

The physiological data presented by Healy and his colleagues in 2011 using the NHANES data set from the CDC highlights the medical/health concerns associated with sedentary behaviors. They found sitting and the unloading of the body that accompanies this behavior decreased muscle lipoprotein lipase activity leading to an increase in triglyceride uptake into the muscle and a decrease in plasma HDL-Cholesterol. This accelerometry-measured sedentary behavior (as opposed to self reported sitting time) correlated also with increases in the inflammatory marker of C-reactive protein, fasting blood glucose and waist circumference.\(^2\)

Britta Larsen of UC San Diego and colleagues reported at the recent (2012) American Heart Association Meetings that sitting was correlated with fat deposited around the pericardium of the heart. They used CT scans of 500 older Americans as well as self-reported data of sedentary behaviors.\(^4\)

Our health thrives on at least 30 minutes of moderate physical activity each day as many reports have shown over the past decade (more is likely better). However we also need to be more frugal in our sitting and/or screening viewing behaviors. Let’s become more standup-friendly. While there are no formal guidelines YET for this or these behavior(s), a common sense approach might be to take a 5 minute standup and stretch or walk break every hour to get way from any screen viewing (if your life/job allows). Our society is evolving to more sedentary behaviors. Both exercise and less sedentary behaviors are needed to counter this trend. Is it time that national guidelines for health include specific goal(s) for limiting sitting and other sedentary behaviors?

### About the Author

Gregory B. Dwyer, Ph.D., FACSM is a clinical exercise physiologist and professor in the Department of Exercise Science at East Stroudsburg University of Pennsylvania (ESU). He is certified as an ACSM Exercise Test Technologist\(^{33}\), ACSM Exercise Specialist\(^{®}\), ACSM Program Director\(^{33}\), and ACSM Registered Clinical Exercise Physiologist.

Dr. Dwyer has written two main textbooks [ACSM Health-Related Physical Fitness Assessment Manual and ACSM’s Metabolic Calculations Handbook] as well as numerous chapters for textbooks and a learning CD-ROM. Dr. Dwyer is the senior editor for the ACSM Certification Review Manual.

### References

4. Larsen B. Too much sitting linked to fat buildup around the heart. Nov. 6, 2012, presentation, annual meeting, American Heart Association, Los Angeles, CA. as reported on MEDLINE Plus. [accessed 23 January 2013]

### Other suggested reading

Physiological Factors (continued from page 9)

...people born with more muscle fibers may have a genetic advantage over people born with fewer muscle fibers with respect to the primary training effects of resistance exercise (muscle size and muscle strength). However, it is important to stress that essentially everyone can attain musculoskeletal improvements through properly performed progressive resistance exercise.

Motor Unit Type

...motor unit makes up. A motor unit includes all of the muscle fibers innervated by a single motor nerve. There are two general categories of motor units. Type 1 motor units, also known as slow-twitch, are comprised of fewer muscle fibers (average 100), whereas Type 2 motor units, also known as fast-twitch, are comprised of more muscle fibers (average 500). While an average person’s quadriceps muscles may have 50% Type 1 and 50% Type 2 motor units, a distance runner’s quadriceps may have 75% slow-twitch motor units and a sprinter’s quadriceps may have 75% fast-twitch motor units. Type 2 motor units are more responsive to resistance training and have greater potential for muscle hypertrophy. Although muscle fibers/motor units are capable of adapting to various stresses of exercise, people who inherit higher percentages of Type 2 motor units generally experience greater training-induced muscle development than people who inherit a higher percentage of Type 1 motor units. This is most likely due to the following characteristics of Type 2 motor units as compared to Type 1 motor units: (1) larger size; (2) greater force production; (3) faster contraction speed; and (4) higher anaerobic capacity.

Summary

There are several inherent physiological factors that affect our response to progressive resistance exercise. Two of these genetically determined factors are basic body type and motor unit make-up. People who inherit a relatively high number of muscle fibers appear to have a greater potential for increasing muscle strength and size than individuals who inherit a relatively low number of muscle fibers. Likewise, people who inherit a relatively high percentage of Type 2 motor units may have greater potential for increasing muscle strength and size than individuals who inherit a relatively low percentage of Type 2 motor units.

Taking these genetically determined factors into consideration, strength trainers should expect different developmental responses to any resistance exercise program, and should emphasize individual progress over the attainment of generalized training goals (e.g., 300 pound bench press, 400 pound squat).

About the Author

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References

Margaret Moore, M.B.A. (Coach Meg), the EP should: “appreciate without judgment” and “coach don’t preach.” This advice captures a common theme of the Five-As Model and the techniques of MI. Both approaches emphasize the use of empathy and working with a client to move toward a desired result. While it may require some effort, the EP is encouraged to take the time to learn and practice the strategies of client-centered counseling.

Suggested Resources:
Motivational Interviewing Web site:
www.motivationalinterviewing.org/quick_links/about_mi.html

About the Author
Sherry Barkley, Ph.D., FACSM, CES, RCEP, is assistant professor and chair of the HPER Department at Augustana College, Sioux Falls, SD. Sherry is past-president of the Northland Regional Chapter of ACSM. Her interest in behavioral theory and motivational techniques is triggered by experience in the clinical setting, working with clients toward positive lifestyle changes.

Fat Rights (continued from page 7)

ACSM has long understood the function of a fitness professional to be that of an educator. With respect to the fat rights movement, this means that fitness professionals must not only stay abreast of advances in health science but they should understand how to effectively communicate that science to clients of every physical ability. Fitness professionals are advised to consider the vernacular preferences of their clients. Often for accuracy and practicality, the term “fat” may indeed be most appropriate. Be warned that this term is used unabashedly by fat rights advocates.

Fat rights do challenge the fitness profession but they do not invalidate it. What fat rights advocates want is respect for people. This is an attribute shared by many fitness professionals. By understanding the fat rights argument, fitness professionals may be even more effective in responding to the diverse health needs of their clients and make genuine improvements to public health.

About the Author
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coach of healthy individuals as well as those with controlled disease. The CCRB has defined the scope of practice of the HFS through the direct feedback of practicing HFS. The job definition of the HFS states: ‘The HFS performs pre-exercise health risk assessments, conducts physical fitness assessments, interprets results, develops exercise prescriptions, and applies behavioral and motivational strategies to apparently healthy individuals and individuals with medically controlled diseases and health conditions to support clients in adopting and maintaining healthy lifestyle behaviors. The academic preparation of the HFS also includes fitness management, administration, and supervision. The HFS is typically employed or self-employed in commercial, community, studio, corporate, university, and hospital settings.’

About the Authors
Gary Liguori, PhD, is a Fellow of the American College of Sports Medicine and senior editor for the first edition of ACSM’s Resources for the Health Fitness Specialist. Most recently, Gary has served as chair of ACSM’s CCRB Health Fitness Specialist sub-committee. Gary’s work experience includes serving on the Health/Exercise Science faculty at the University of Wyoming, Youngstown State University, North Dakota State University, and currently as head of Health and Human Performance at the University of Tennessee Chattanooga. Gary has published his research in wide range of peer-reviewed journals, authored a successful fitness and wellness text, and serves on the editorial board of ACSM’s Health & Fitness Journal. Gary has participated in an international teaching exchange in the Netherlands and also presented his work in Asia, Europe, and Australia.

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Editor’s Note: We also would like to recognize Greg Dwyer, PhD, FACSM, and Beth Lewis, PhD, who also were associate editors on this project.

Coaching (continued from page 8)

the hormone of love. This same soothing phenomenon works just as well in adults, except we can soothe ourselves with big-hearted self-kindness.

The last step in processing the negative emotions tied to today’s state of being overweight is to learn from them – at their best they are good teachers, they have messages to share. “The stress of being overweight is impairing my closest relationships,” for example. Or “I want to be a good role model for my kids so they don’t suffer the way I am.”

A next part of the change process is to have your clients envision the future they want, a future that feels much bigger and more inspiring than a lower number on the weight scale. Harvard psychologist Shelley Carson, Ph.D., teaches us in her book, Your Creative Brain, that when we use the brain’s visual machinery to picture what we want, (i.e., hiking a mountain with our children, looking great in stylish clothes, having lots of energy to make the world a little better place every day) we increase the probability of success. Change the words: “I resolve” to “I dream.” The furrowed brow of “I will make myself do this” transforms into eyes filled with hope for a better future. Help clients get clear on what they really want that a lighter and stronger body will give them, something much deeper than the number on the scale. Ask questions like, “How will your life be better if you lose weight?” and “What is the ‘why’ I want to do this with all of my heart’ that can be summoned in the many moments every day when you are tempted to eat a cookie instead of an apple, take the elevator and not the stairs, or hit the snooze button rather then getting out of bed to exercise.” The bigger the why, the easier the how.

To conclude, in this column we’ve explored how to help clients develop a new approach to New Year’s resolutions, one built on mindfulness, with love and not blame, a heart’s desire not an inner critic, and a beautiful picture of what the future can bring. Next time we will explore more steps for turning resolutions into “I did it!”

About the Author
Margaret Moore, M.B.A. (Coach Meg), is the founder and CEO of Wellcoaches Corporation, a strategic partner of the ACSM, widely recognized as setting a gold standard for professional coaches in healthcare and wellness. She is co-director of the Institute of Coaching, at McLean Hospital, an affiliate of Harvard Medical School and co-directs the annual Coaching in Leadership & Healthcare Conference offered by Harvard Medical School. She co-authored the ACSM-endorsed Lippincott, Williams & Wilkins Coaching Psychology Manual, the first coaching textbook in healthcare and the Harvard Health Book published by Harlequin: Organize Your Mind, Organize Your Life.

References
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