



# Lifestyle Medicine Standards

## **Lifestyle Medicine Standards Taskforce**

Editor: Jennifer Rooke, MD, MPH, FACOEM, FACPM

John Gobble, DrPH, RD, LD, MCHES

Tasha Ballard, PhD, RN

Willy Oglesby, PhD, MSPH, FACHE

George Guthrie, MD, FACPM

Corey Howard, MD, FACP

R. Jason Newsom, MD

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. - Preamble to the Constitution of the World Health Organization, 1946

Lifestyle is the set of behaviors that reflect an individual’s beliefs and values.

**DEFINITION OF LIFESTYLE MEDICINE**

Lifestyle Medicine is the therapeutic use of evidence-based lifestyle interventions to treat and prevent lifestyle related diseases in a clinical setting. It empowers individuals with the knowledge and life skills to make effective behavior changes that address the underlying causes of disease.

**Table 1: Lifestyle Medicine Compared to Other Approaches to Patient Care**

Type of Practice	Features
<b>Lifestyle Medicine<sup>1</sup></b>	<ul style="list-style-type: none"> <li>-Emphasis on promoting behavior changes that allow the body to heal itself.</li> <li>-Focus on evidence-based optimal nutrition, stress management and fitness prescriptions</li> <li>-Patients are active partners in their care</li> <li>-Treats the underlying lifestyle causes of disease</li> <li>-Physician/Provider educates, guides and supports patients to make behavior changes</li> <li>-Medications used as an adjunct to therapeutic lifestyle changes</li> <li>-Patient’s home and community environment are assessed as contributing factors..</li> </ul>
<b>Conventional Medicine<sup>2</sup></b>	<ul style="list-style-type: none"> <li>- Emphasis on making a diagnosis and treatment with pharmaceuticals or surgery</li> <li>-Patient is passive recipient of care</li> <li>-Focuses on symptoms or signs of disease not the underlying lifestyle causes.</li> <li>-Patient is not expected to make significant behavior changes</li> <li>- Physician/Provider directs care - medical model.</li> <li>- Medications are the primary therapeutic intervention.</li> <li>-Patient’s home and community environment are typically not considered</li> </ul>
<b>Integrative Medicine<sup>3</sup></b>	<ul style="list-style-type: none"> <li>-Emphasis on integrating conventional treatment with alternative treatments.</li> <li>Focus on treatments such as acupuncture, biofeedback and nutraceuticals along with some evidence-based lifestyle interventions.</li> <li>-Patient may be an active or passive recipient of care</li> <li>Treats symptoms or signs of disease not the underlying lifestyle causes.</li> <li>-Patient may not be required to make significant behavior changes</li> <li>-Physician/Provider directs care - medical model</li> <li>-Patient’s home and community environment typically not considered</li> </ul>
<b>Functional Medicine<sup>3,4</sup></b>	<ul style="list-style-type: none"> <li>-Emphasis on evidence-based, systems biology approach that addresses underlying dysfunction rather than treating symptoms.</li> <li>-Focus on evidence-based lifestyle interventions with the use of pharmaceuticals, nutraceuticals, and biologicals when appropriate.</li> <li>-Patients are active participants in their care.</li> <li>-Patients must typically make lifestyle changes in order to improve their health.</li> <li>-Physician guides and supports patients to take control of their own health.</li> <li>-Environmental exposures and social dynamics are assessed as contributing factors.</li> </ul>
<b>Naturopathy/ Homeopathy<sup>5</sup></b>	<ul style="list-style-type: none"> <li>-Emphasis on homeopathic and naturopathic treatments such as herbs and colonics.</li> <li>-Treatments may be based on traditional practices rather than scientific evidence.</li> <li>-Focuses on treating presenting symptoms but may address underlying lifestyle causes</li> <li>-Patients may be active or passive recipients of care depending on the practitioner.</li> <li>- Patient may be required to make significant behavior changes</li> <li>-Provider directs care based on medical model</li> <li>-Patient’s home and community environment may be considered.</li> </ul>

## **LEVELS OF LIFESTYLE MEDICINE PRACTICE**

The ideal of medical care is to treat the cause of disease and restore patients to health. LM brings medical practice closer to its ideals by treating the underlying lifestyle causes of disease. LM may be practiced on two levels. The first basic level involves the recognition by all health care providers that lifestyle is a significant determinant of health and an important modifier of individual patient responses to pharmaceutical or surgical treatments. At this level all physicians should use lifestyle interventions as an adjunct to their standard treatment protocols. The second level is specialty care practiced by LM experts as a separate, eventually board certified, medical specialty where lifestyle interventions are the main focus of treatment and pharmaceutical or surgical treatments are an adjunct to treatment when necessary.

### **Recommendations for Basic Lifestyle Medicine Practice for All physicians**

The basics of LM should be taught at all medical schools and residency training programs in the same way that the basics of cardiology are taught to all physicians in training. The basic competencies of LM are clearly outlined in the *Physician Competencies for Prescribing Lifestyle Medicine* by Liana Lianov and Mark Johnson.<sup>6</sup> All physicians should have knowledge with both clinical and personal experience of evidence-based lifestyle interventions such as plant-based nutrition, stress management techniques and exercise prescriptions that they can easily share with their patients during the traditionally brief doctor-patient encounter. All physicians should be encouraged to adopt a patient-centered communication style that fosters motivation and health literacy in their patients. Appropriate encouragement of evidenced-based lifestyle changes and/or referral to a LM Specialist should be considered standard of care.

### **Lifestyle Medicine Certification**

Requirements for certification to practice LM as medical specialty would be similar to all current medical specialties:

- MD or DO from an accredited Medical or Osteopathic school
- Completion of Residency Training or an equivalent alternate pathway that includes completion of academic coursework and practice experience in Lifestyle Medicine as determined by an ACLM Credentialing/Certification Committee.
- Certification by a primary Board accepted by the American Board of Medical Specialties or the American Board of Physician Specialists.

Current medical training does not routinely include a focus on the use of evidence-based lifestyle interventions such as nutrition, exercise and stress management techniques in the treatment of lifestyle-related diseases.<sup>7,8</sup> Physicians interested in practicing LM as a specialty must have the specialized academic knowledge and practical experience to ensure a consistently high standard of practice. LM curricula for medical schools and LM residency programs are needed. A credentialing process that measures acquisition of the knowledge and skills determined to be necessary to practice LM is also needed. The content of the curricula and standards for certification should be determined by an ACLM Credentialing/Certification committee based on the principles of LM established in these and future disease-specific guidelines.

## **LIFESTYLE MEDICINE PRACTICE TEAM**

Lifestyle Medicine practice offers a unique opportunity to develop an interdisciplinary team of professionals who can work together to provide effective patient-centered care. Similar to any medical practice the team will work under the supervision and guidance of a Licensed Physician who is trained or has demonstrated expertise in Lifestyle Medicine. The range and level of staffing needed to operate a Lifestyle Medicine practice will depend on the services offered, financial considerations and the needs of the community and the patients served, however it is highly recommended that Lifestyle Medicine practices include the following professionals as appropriate.

### **Licensed Dietitians/Nutritionists**

Nutrition is an essential therapeutic intervention in Lifestyle Medicine. The knowledge and skills of the nutrition professional will determine the success of nutrition treatments offered by the practice. The basic requirement for this position should be a degree in Nutrition, preferably an advanced degree, such as MS; a state license to practice as a Dietitian or Nutritionist; and completion of either formal course or informal training with practical experience in the use of plant-based nutrition in the treatment of chronic degenerative diseases. Personal experience of plant-based nutrition is highly recommended.

### **Exercise Physiologists/Exercise Coaches/Personal Trainers**

Fitness assessments and exercise prescriptions are essential components of a Lifestyle Medicine treatment plan and exercise professionals are essential members of a Lifestyle Medicine treatment team. They should have American College of Sports Medicine/Exercise Is Medicine™ certification or equivalent certification that would allow them to write exercise prescriptions for patients.<sup>9</sup> As members of a Lifestyle Medicine treatment team they must be knowledgeable about plant-based nutrition in disease management. They may or may not also be nutrition professionals but they are role models for patients and may be asked by patients for nutrition advice. All patients of a Lifestyle Medicine practice should receive the same clear consistent message from all members of their treatment team.

### **Psychologist/Licensed Therapists/Health Coaches**

Behavior modification is the key element of Lifestyle Medicine treatment. Professionals who can assist patients to understand and transform unhealthy behaviors into health promoting ones are essential members of the Lifestyle Medicine treatment team. These professionals should have a degree in psychology or a related field or certification as a health coach; a valid state license to practice if needed; and training in the principles of Lifestyle Medicine to ensure that all patients get the same clear consistent message from all members of their treatment team.

### **Nurse Practitioners/Physician's Assistants/Nurses/Medical Assistants**

Medical office staff with direct patient contact can reinforce or detract from the Lifestyle Medicine message of the practice. These professionals need standard certifications and state licenses plus formal or in-service training on the basic principles of Lifestyle Medicine. An ACLM sponsored Lifestyle Medicine training curriculum and certification process is needed. Training would include the benefits of a plant based diet, regular exercise, and stress management techniques that these professionals can incorporate into their personal lives and share with patients. All patients should receive the same clear consistent treatment message.

## **LIFESTYLE MEDICINE INTERVENTIONS AND PRACTICES**

In the conventional medical model patients interact with healthcare providers in a one-on-one fashion that is primarily focused on disease management. Preventive care as currently practiced focuses on screening to detect diseases that can be treated with pharmaceuticals drugs or surgery. Lifestyle issues are not always effectively addressed in the setting because of provider training and time constraints. There is a need for development of effective complementary methods to provide lifestyle health information to patients such as:

- Workplace environmental and human resource interventions
- School presentations or incorporation of Lifestyle principles into school curricula.
- Retail sales interventions such as NuVal and Walmart's "Great for You" labels.<sup>10,11</sup>
- Media exposure; internet or computer based education, radio and TV programming
- Group programs in community locations such as CHIP<sup>12</sup> and Wellspring Diabetes.<sup>13</sup>
- Internet motivation tools for lifestyle change such as CREATION Health,<sup>14</sup> Win Wellness,<sup>15</sup> The Way to Eat,<sup>16</sup> and Weigh Forward.<sup>17</sup>

These and other examples of current programs and others yet to be developed, will expand the effectiveness of lifestyle interventions. The ideal practice model for lifestyle medicine is evolving, and different practitioners will have their preferences but one model that has been successfully implemented by a number of lifestyle medicine practitioners is the Shared Medical Appointment or "SMA."

### **Shared Medical Visits/Shared Medical Appointments**<sup>18</sup>

Shared medical visits are an innovative, interactive approach to providing healthcare that brings patients together with one or more healthcare providers. It is an excellent way to assist patients to form community around solving their health care problems. Currently, the typical patient spends 15- 30 minutes with a doctor/health provider during an individual medical appointment. Patients often report that before they were finished relating their problem the provider was writing a prescription and indicating that the session is over with no explanation of the medical problem or the medications prescribed. A shared appointment can last from 90 minutes to 3 hours depending on the structure of the Lifestyle Medicine intervention. This allows patients to spend more time with their healthcare team and with other patients who have similar health issues. Patients can learn from the health care team and from each other, sharing stories and ideas and creating social bonds. The support of SMAs is particularly valuable to patients with lifestyle-related conditions such as hypertension and diabetes who are struggling to make healthy lifestyle changes in unsupportive home or social environments.

## **BASIC LIFESTYLE MEDICINE INTERVENTION GUIDELINES**

Lifestyle medicine is based on scientific evidence that the body will heal itself when the factors which cause disease are removed. Diseases such as cardiovascular disease, diabetes and Crohn's disease that were once thought to be irreversible have all been completely reversed by comprehensive lifestyle changes.<sup>19, 20, 21, 22</sup> The goal of a Lifestyle Medicine intervention is to replace unhealthy behaviors with behaviors that promote health. There is a wide variety of health promoting behaviors that have been successfully used in the treatment of lifestyle diseases but generally most lifestyle related diseases benefit from the same simple lifestyle behavior changes. These include, but are not limited to optimum nutrition, physical activity, stress management, tobacco cessation, and improved interpersonal relationships.

## **BASIC NUTRITION GUIDELINES FOR LIFESTYLE MEDICINE PRACTICE**

Nutrition is an essential element of LM practice; it is the underlying cause of many lifestyle diseases, and changing eating habits alone can reverse many lifestyle diseases<sup>22,23,24</sup> Nutrition is also the most confusing and controversial area of LM for both healthcare professionals and patients. Eating behaviors are formed in childhood and determined not by conscious thought but by unconscious sociocultural norms, beliefs, and taste preferences.<sup>25</sup> When new scientific evidence regarding health and diet conflicts with accepted beliefs, the result is often cognitive dissonance, and the science is likely to be rejected in favor of established behaviors.<sup>26</sup> Awareness of the unconscious influences that sustain unhealthy eating habits is crucial for successful eating behavior changes among both healthcare professionals and their patients.<sup>27</sup>

All patients should be given accurate nutrition information that is based on the most current scientific evidence regardless of their gender, ethnic group, income status, education level or perceived readiness to change. The most current scientific evidence available supports the use of whole unprocessed or minimally processed plant foods as treatment for most of the lifestyle related illnesses in our population<sup>28,29,30,31</sup> Regardless of medical specialty, all physicians should be educated about this scientific literature, and advising patients to make these dietary changes should be considered the standard of care.

All patients in a LM practice should be given an initial nutrition assessment that includes a questionnaire about their current eating habits and laboratory tests for serum lipids, blood glucose, and vitamin D levels. Routine screening for non-specific nutritional deficiencies is not recommended. Nutrient testing should be targeted based on a patient's symptoms and signs. A brief nutrition survey should be repeated periodically at follow-up visits to assess progress or deterioration. Nutrition/dietary treatment prescriptions should be based on the results of nutrition assessments and evidence-based nutrition research.

When nutrition deficits are identified the role of the LM Treatment Team is to educate patients about healthy eating options and then motivate, guide and support them as they make and sustain the necessary behavior changes. This can include a wide variety of activities such as providing nutrition clinics, seminars and other resources, introducing patients to new foods at food sampling events, holding cooking classes, providing personalized meal plans with shopping lists, leading supermarket and farmers market tours, visiting urban farms, starting community gardens, organizing personal chef services and/or providing packaged foods services to make healthy food choices more convenient for busy patients.

Every five years the Federal government issues dietary guidelines that are intended to promote health and also satisfy food industry interests. Reliance on these dietary standards may not always produce the desired health outcomes expected by patients who chose a LM practice. LM Practitioners should be able to modify and translate these dietary guidelines into simple practical advice that patients can understand and follow. Current Federal dietary guidelines recommend decreasing cholesterol and saturated fat intake, and increasing intake of fruits, vegetables, legumes and whole grains.<sup>32</sup> Advising patients to adopt an ad libitum diet of whole, unprocessed or minimally processed plant foods may be the easiest and most effective approach to achieve sustainable adherence to these dietary recommendations.<sup>32</sup> Table 2 below compares current Federal Dietary guidelines with current scientific evidence.

**Table 2: Federal Dietary Guidelines vs Current Scientific Evidence**

Macronutrients	Federal Dietary Guidelines <sup>32</sup>	Evidence-Based Recommendations
<b>Protein</b> % of calories adults 19+ years old	10 -35% from animal and plant sources	10–12% preferably from plant sources Animal protein/higher protein % promote cancer cell growth. <sup>28</sup>
<b>Carbohydrates</b> % of calories All ages and genders	45–65%	45 - 75% of calories <sup>33</sup> From whole unprocessed or minimally processed sources
<b>Total Fiber</b> Adults 19+	Females: 22 - 28 g/day Males: 28 -34 g/day	Females: $\geq 25$ g [ $\geq 14$ g/1000 kcal <sup>33, 34</sup> with no upper limit] Males $\geq 38$ g
<b>Total fat</b> % of calories adults 19+ years old	25–35%	<15% Whenever possible obtain from whole unprocessed plant sources <sup>35</sup>
<b>Saturated Fat</b> % of calories All ages and genders	<10% from plant and animal sources	Not essential <sup>35</sup> Limit intake and only obtain from plant sources
<b>Linoleic Acid (<math>\omega</math>-6 Fatty Acids)</b> % of calories All ages and genders	5-10% from plant and animal sources	5-10% - From whole unprocessed plant sources whenever possible. <sup>35</sup>
<b><math>\alpha</math>-Linoleic Acid (<math>\omega</math>-3 Fatty Acids)</b> % of calories All ages and gender	0.6–1.2% - from plant and highly processed animal sources such as fish oils	0.6–1.2% - From whole unprocessed plant sources whenever possible. <sup>35</sup>
<b>Cholesterol</b> All ages and genders	<300 mg/day	Not essential/harmful. Dietary cholesterol crystals injure endothelial cells and start the inflammatory process that leads to heart disease and strokes. <sup>36</sup> It increases the risk of gallbladder disease. <sup>37</sup>

**PHYSICAL ACTIVITY/EXERCISE GUIDELINES**

Regular physical activity results in short and long-term health benefits and reduces the risk of adverse health outcomes. The health benefits of exercise apply to children and adults of all ages and social groups and to patients with chronic diseases and disabilities.<sup>38</sup> The importance of exercise is generally accepted by most healthcare professionals and advice to exercise is often the only lifestyle advice that patients receive. Any lifestyle improvement advice given by health care professionals is valuable, but exercise advice alone without dietary changes will be ineffective for many patients. Exercise without dietary changes may maintain current weight but will not lead to significant weight loss or reversal of lifestyle diseases such as atherosclerosis.<sup>22, 39</sup> Cardiac rehabilitation programs that focus only on exercise may improve patient quality of life, but they do not prevent restenosis of stented coronary arteries or subsequent cardiac events.<sup>40</sup> Exercise is most effective when it is prescribed as part of a comprehensive LM Treatment program that includes plant based nutrition and other modalities such as stress management.

All patients in a LM treatment program should have an initial fitness assessment and exercise prescriptions based on the results of their assessment. A basic assessment measures flexibility, strength, and cardiovascular endurance, other parameters may be added as needed. Exercise prescriptions are individualized according to the results of their fitness assessment and standardized by use of the 2011 ACSM Guidelines for Prescribing Exercise which are consistent with the 2008 Federal Physical Activity Guidelines.<sup>38,41</sup> Periodic assessments to measure progress towards fitness goals and to update exercise prescriptions should be completed at regular intervals depending on the treatment needs of the patient and the program structure.

**Table 3: ACSM Physical Activity Recommendations<sup>38</sup>**

Age	No Diagnosed Diseases	Diagnosed Health Conditions
Children and Adolescents (6-17 years old)	<p>-At least 60 minutes or more of physical activity/ day. Most of the time should be either moderate- or vigorous-intensity aerobic physical activity.</p> <p>-They also should do muscle-strengthening and bone-strengthening activity at least 3 days/ week.</p>	<p>**When possible try to meet the guidelines. Get as much activity as the health condition allows. **Avoid inactivity.</p> <p>**Refer to the ACSM Prescription for Health guidelines. <a href="http://www.exercisemedicine.org">www.exercisemedicine.org</a></p>
Adults (18-64)	<p>-At least 150 minutes a week of moderate intensity, or 75 minutes a week of vigorous-intensity aerobic physical activity or an equivalent combination of moderate- and vigorous-intensity aerobic physical activity.</p> <p>**Activity should be performed in episodes of at least 10 minutes, preferably spread throughout the week.</p> <p>**Activity may be increased to 5 hours (300 minutes) a week of moderate-intensity aerobic physical activity, or 2 hours and 30 minutes a week of vigorous-intensity physical activity, or an equivalent combination of both for additional health benefits</p> <p>**Muscle-strengthening activities that involve all major muscle groups performed on 2 or more days per week.</p>	<p>Follow the adult guidelines. If this is not possible, patients should be as physically active as their abilities allow.</p> <p>**Always avoid inactivity</p> <p>Refer to the ACSM Prescription for Health guidelines. <a href="http://www.exercisemedicine.org">www.exercisemedicine.org</a></p>
Older Adults (65+)	<p>Follow the adult guidelines, or be as physically active as possible.</p> <p>Avoid inactivity; some activity is better than none.</p> <p>Exercises that maintain or improve balance if at risk of falling.</p> <p>People without diagnosed chronic conditions (such as diabetes, heart disease, or osteoarthritis) and who do not have symptoms (e.g., chest pain or pressure, dizziness, or joint pain) do not need to consult with a healthcare provider about physical activity</p>	<p>Develop an activity plan with a health care professional.</p> <p>Avoid inactivity; some activity is better than none.</p> <p>Refer to the ACPM Prescription for Health guidelines <a href="http://www.exercisemedicine.org">www.exercisemedicine.org</a></p>

\*\*Pedometers, step-counting devices used to measure physical activity, are not an accurate measure of exercise quality and should not be used as the sole measure of physical activity.<sup>8</sup>



## **STRESS MANAGEMENT/ GUIDELINES**

Stress can be defined as “any demand for change.”<sup>42</sup> The stress response is a cascade of physiological events that can lead to improved health and productivity or to anxiety, depression, obesity, immune dysfunction and poor health outcomes.<sup>42,43,44</sup> Assisting patients to recognize maladaptive stress responses and transform them into responses that improve health and well-being is an essential part of Lifestyle Medicine practice at all levels.

All patients should be screened initially and periodically for signs of unhealthy stress responses and stress-related conditions such as depression. The U.S. Preventive Services Task Force (USPSTF) recommends screening adults for depression in clinical practices that have systems in place to assure accurate diagnosis, effective treatment, and follow-up.<sup>45</sup> There are several screening instruments available such as the Patient Health Questionnaire for Depression and Anxiety (PHQ-4).<sup>46</sup> These screening tools are not diagnostic, patients with positive screens should be evaluated and treated by a mental health professional either in the Lifestyle Medicine practice or on referral. Lifestyle Medicine providers should be knowledgeable about basic evidence-based stress management techniques that they can share with patients. Common evidence-based stress-management techniques include:

**Autogenic training/Guided Imagery**,<sup>47</sup> are relaxation techniques that involve visualizations to induce a state of relaxation. Patients can use an instructor, tapes, or scripts to guide them through the process. Practiced daily for 15 minutes 3 times a day the technique has been shown to alleviate many stress-related life conditions such as chronic pain, tension headache, anxiety, and depression.

**Cognitive Behavioral Therapy (CBT)**<sup>47</sup> is based on the notion that thoughts lead to emotions that lead to behavior, therefore changing thoughts can change behavior. Distorted thoughts/cognitive distortions underlie many forms of unhealthy behaviors and mental illnesses. There are several approaches to CBT but most approaches assist patients to understand the beliefs that underlie their thoughts; increase awareness of cognitive distortions; and reframe distorted self-talk to support healthy behavior changes. Although CBT is used to treat a wide range of mental illnesses, it can also be used with success to promote healthy behaviors among Lifestyle Medicine patients.

**Diaphragmatic Breathing**<sup>47</sup> is a breathing technique that focuses on movement of the abdomen when breathing. As air enters the lungs the diaphragm relaxes and expands the abdomen. This type of breathing has been shown to lower blood pressure, reduce pain, and reduce anxiety especially in children with asthma.

**Meditation**<sup>47</sup> is a catch-all term for a wide variety of practices where individuals attempt to focus awareness. Countless studies have shown the benefits of meditation as treatment for stress-related health conditions.<sup>48</sup> The most researched method is Transcendental Meditation but other methods that achieve the same physiological effects are equally effective at producing positive health outcomes. Measurable physiological changes such as decreased heart rate, respiration, blood pressure and positively altered brain wave activity have been documented during meditation. Meditation has been shown to promote relaxation, improve cognitive function and relieve depression, anxiety and chronic pain.

**Progressive Muscle Relaxation** <sup>47</sup> is based on the physiological finding that anxiety causes unconscious muscle tension; consciously relaxing tense muscles should be able to reduce anxiety. This technique involves alternately tensing and relaxing muscle groups over the legs, abdomen, chest, arms and face in a sequential pattern while focusing on the difference between the feelings of the tension and the feelings of relaxation. Evidence shows benefits significant reduction in generalized anxiety.

**Other evidence-based stress reduction techniques** that Lifestyle Medicine Practitioners should be aware of include relaxation response, biofeedback, emotional freedom technique, mindfulness-based stress reduction exercises and emotional freedom techniques.<sup>47</sup> Patients with specific stressors can be taught trigger-specific management. The services offered in a LM practice depends on the available facilities and staff but where possible inclusion of services such as therapeutic massage, yoga and Tai-chi instructions,<sup>49</sup> and workshops to improve problem-solving skills, time management, humor and assertiveness may be useful ways to assist patients to transform unhealthy stress responses.<sup>50</sup> In addition LM practitioners should encourage patients to engage in creative, expressive activities such as dancing, playing musical instruments, singing, and art to increase the likelihood of flow experiences that improve quality of life.<sup>51</sup>

## **TOBACCO USE CESSATION GUIDELINES**

The dangers of tobacco use are well documented, it increases the risk of mouth throat and lung cancer, heart disease and chronic obstructive pulmonary diseases.<sup>52,53,54</sup> Tobacco use disorder is itself considered a chronic disease that requires repeated interventions and multiple attempts to resolve. *The US Public Health Service Guidelines for Treating Tobacco Use and Dependence* recommends that all clinicians identify and document the tobacco use status of every patient in their practice.<sup>55</sup> Tobacco use cessation, including treatment options should be discussed with all current tobacco users regardless of their perceived readiness to quit tobacco use. Clinicians should be aware of motivational techniques to encourage patients who are not ready to make quit attempts.

Tobacco use cessation counseling and medications can be effective when either one is used alone but they are most effective when used together. In a Lifestyle Medicine practice the method used should be individualized to suit patient needs and preferences. Tobacco use cessation medications are contraindicated in certain groups such as pregnant women, smokeless tobacco users, light smokers, and adolescents. Tobacco use cessation counseling may be conducted in individual one-on-one sessions, groups, or on telephone quit lines. Important components of tobacco use cessation counseling are practical problem solving/skills training and social support.<sup>55</sup>

Lifestyle Medicine providers should know how to safely prescribe tobacco cessation medications alone or in combination.<sup>55</sup> Currently 2 basic types of quitting aids are available nicotine-replacement products and non-nicotine medications. The nicotine replacement products are available over-the-counter in 5 forms, as gum, inhaler, lozenge, nasal spray and patch. The non-nicotine medications Varenicline (Chantix) and Bupropion SR (Zyban) are only available on prescription. Tobacco use cessation treatment is an important part of Lifestyle Medicine treatment and may be offered alone or as part of a comprehensive lifestyle intervention program.

## **INTERPERSONAL/GROUP/COMMUNITY RELATIONSHIPS**

Humans are social beings; the need for social connection is a basic survival urge that is hardwired into our nervous systems. The areas in our brain involved in processing social stimuli and decision making are noticeably larger in those with large social networks.<sup>56</sup> Social relationships are as important to our health as diet, exercise and smoking habits, in fact the quality of our relationships may determine whether or not we chose to engage in healthy lifestyle behaviors.<sup>57</sup> Repeated studies show that unhealthy social relationships, isolation and loneliness are associated with increased mortality and morbidity especially among individuals with established lifestyle-related diseases.<sup>57, 58, 59</sup> Identifying patients at risk for social isolation and assisting them develop or improve the social skills necessary to form and maintain healthy relationships should be an important part of a Lifestyle Medicine practice.

Individuals who live alone are not always the most socially isolated or lonely. People with seemingly caring families and demanding jobs may be most in need of genuine social connection.<sup>60</sup> All patients in a Lifestyle Medicine practice, regardless of marital status, living arrangements or mental health status, should be screened for social isolation/loneliness. There are several screening tools such as the UCLA Loneliness Scale that measure perceived feelings of isolation and are easy to administer in a clinical setting.<sup>61</sup> Review of screening results in the context of a patient-provider relationship that includes active listening and expressive empathy may be a comforting for patients experiencing social isolation and resulting mood disorders. Patient with mental health problems should be referred appropriately.

Lifestyle Medicine prescriptions for developing or improving social relationships should be personalized to meet the needs of individual patients. Advice to prevent social isolation may include volunteering for a meaningful cause, involvement in spiritual/religious activities or participation in communication skills workshops such as Compassionate (nonviolent) Communication.<sup>62</sup> When an individual makes lifestyle changes to improve personal health, they may meet with resistance from their friends, family, social groups members, coworkers and even health care providers. This is especially true when the changes involve new ideas and behaviors that are different from accepted sociocultural norms. The ability to understand criticism and handle rejection and possible social isolation will determine whether the new healthy behaviors are sustained. Helping patients to develop these skills should be a consideration in a Lifestyle Medicine practice. The practice may offer or facilitate access to workshops that assist patients to improve health literacy,<sup>63, 64</sup> develop active listening skills, resolve internal and external conflicts to produce win-win solutions,<sup>65</sup> improve intimacy,<sup>57</sup> and improve workplace relationship with a view to negotiating successful personal lifestyle changes in possibly resistant family and other social settings.

## **REFERENCES**

1. Egger G, Binns A, Rossner S. *Lifestyle Medicine*. Sydney: McGraw Hill; 2008.
2. Rakei D. *Integrative Medicine, 3rd Ed*. Philadelphia: Saunders; 2012.
3. Jones DS, Hofmann L, Quinn S, *21st Century Medicine: A New Model for Medical Education and Practice, The Institute for Functional Medicine*: Gig Harbor, WA, 2009.
4. Baker SM, et al. *Textbook of Functional Medicine*. The Institute for Functional Medicine: Gig Harbor; 2010.

5. Dooley T. *Homeopathy, Beyond Flat Earth Medicine, 2nd Ed.* San Diego: Timing Publications; 2002.
6. Lianov L, Johnson, M. Physician Competencies for Prescribing Lifestyle Medicine. *JAMA.* 2010;304(2):202-203.
7. Committee on Nutrition in Medical Education, Food and Nutrition Board, National Research Council. *Nutrition Education in U.S. Medical Schools.* Washington, DC: The National Academies Press; 1985.
8. Adams K, Kohlmeier M, Zeisel S. Nutrition Education in U.S. Medical Schools: Latest Update of a National Survey. *Academic Medicine.* 2010;85(9):1537-1542.
9. American College of sports Medicine, <http://certification.acsm.org/exercise-is-medicine->
10. Ellis J. Groceries Hire Companies to Score Foods' Nutritional Value. *USA Today.* 2012/11/1
11. Strom S. Walmart to Label Healthy Foods. *The New York Times.* 2012 Feb 7.
12. Diehl H. Coronary Risk Reduction through Intensive Community-Based Lifestyle Intervention: The CHIP Experience. *Am J Cardiol.* 1998;82:83-7T.
13. Wellspring Diabetes: <http://www.centreforfamilymedicine.com/diabetes-lifestyle-program>
14. Creation Health: <http://creationhealth.com>
15. WIN Wellness: <http://www.winwellness.org>
16. The Way to Eat: <http://www.thewaytoeat.net>
17. Weigh Forward: <http://www.rediclinic.com/weighforward/>
18. Noffsinger E. *Running Group Visits in Your Practice.* New York: Springer; 2009.
19. Ornish D, et al. Can lifestyle changes reverse coronary heart disease? The Lifestyle Heart Trial. *The Lancet.* 1990; 336:129-133.
20. Barnard N, et al. A Low-Fat Vegan Diet Improves Glycemic Control and Cardiovascular Risk Factors in a Randomized Clinical Trial in Individuals With Type 2 Diabetes. *Diabetes Care.* 2006;29(8):1777-1783.
21. Chiba M, et al. Lifestyle-related disease in Crohn's disease: Relapse prevention by a semi-vegetarian diet. *World J Gastroenterol.* 2010;16(20):2484-95.
22. Esselstyn CB., Jr. Resolving the Coronary Artery Disease Epidemic through Plant-Nutrition. *Preventive cardiology.* 2001;4:171-177.
23. Baer H, Glynn R, Hu F, et al. Risk factors for mortality in the nurses' health study: a competing risks analysis. *Am J Epidemiol.* 2011;173(3):319-29.
24. Ross R, et al. Reduction in obesity and related comorbid conditions after diet-induced weight loss or exercise-induced weight loss in men. *Annals of Internal Med.* 2000; 133.2:92-103.
25. Joy M. *Why We Love Dogs, Eat Pigs, and Wear Cows: An Introduction to Carnism.* Newburyport: Conari Press; reprint edition, 2011.
26. Festinger L. *A Theory of Cognitive Dissonance.* Stanford: Stanford University; 1957.
27. Greco P, Eisenberg J, Changing Physicians' Practices. *Engl J Med.*1993;329:1271-1274
28. Campbell TC, Campbell TM. *The China Study: Startling implications for diet, weight loss and long-term health.* Dallas: BenBella Books, Inc.; 2006.
29. Ornish D, et al. "Intensive Lifestyle Changes for Reversal of Coronary Heart Disease." *JAMA.* 1998;280.23:2001-2007.
30. Esselstyn C, et al. A strategy to arrest and reverse coronary artery disease: a 5-year longitudinal study of a single physician's practice. *J Fam Pract.* 1995; 41.6:560.12.
31. Pan A, Sun Q, et al. Red Meat Consumption and Mortality: Results from Two Prospective Cohort Studies. *Arch Intern Med.* 2012;172(7):555-563.

32. U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans 2010, 7th Edition*. Washington, DC: U.S. Government Printing Office; 2010.
33. Mann J, Cummings JH, et al. FAO/WHO Scientific Update on Carbohydrates in Human Nutrition: Conclusions. *Eur J of Clin Nutr*. 2007;61(Suppl 1):S132–S137.
34. Anderson JW, et al. Carbohydrate and Fiber Recommendations for Individuals with Diabetes: A Quantitative Assessment and Meta-Analysis of the Evidence. *J Am Coll Nutr*. 2004;23(1):5-17.
35. Jacobs, DR Jr, et al., Food, Plant Food, and Vegetarian Diets in the US dietary Guidelines: Conclusions of an Expert Panel. *Am J Clin Nutr*. 2009;89.5:1549S-1552S.
36. Duewell P, Kono H, et al. NLRP3 inflammasomes Are Required for Atherogenesis and Activated by Cholesterol Crystals. *Nature*. 2010;464(7293):1357-61.
37. Cuevas A, et al. Diet as a Risk Factor for Cholesterol Gallstone Disease, *J Am Coll Nutr*. 2004;23(3):187-196.
38. Garber CE, Blissmer, B, et al., American College of Sports Medicine, Quantity and Quality of Exercise for Developing and Maintaining Cardiorespiratory, Musculoskeletal, and Neuromotor Fitness in Apparently Healthy Adults: Guidance for Prescribing Exercise. *Medicine and Science in Sports and Exercise*. 2011; 4(7):1334-1359.
39. King N, Hopkins M. Exercise, Appetite and Weight Management: Understanding the Compensatory Responses In Eating Behaviour And How They Contribute To Variability In Exercise-Induced Weight Loss. *Br. J. Sports. Med*. 2012;46:5:315-322.
40. Heran BS, Chen JM, et al. Exercise-based cardiac rehabilitation for coronary heart disease. *Cochrane Database Syst Rev*. 2011;(7):CD001800.
41. US Department for Health and Human Services. 2008 Physical Activity Guidelines for Americans. Available from: [www.health.gov/PAGuidelines/guidelines/summary.aspx](http://www.health.gov/PAGuidelines/guidelines/summary.aspx).
42. Selye H. Stress and disease, *Science*. 1955;122:625-631.
43. Lambert G, et al. Stress reactivity and its Association with Increased Cardiovascular Risk: A Role for the Sympathetic Nervous System? *Hypertension*. 2010;55(6);e20.
44. Benson H, Stuart E. *The Wellness Book: The Comprehensive Guide to Maintaining Health and Treating Stress-Related Illness*. New York: Simon and Schuster; 1993.
45. U.S. Preventive Services Task Force. *Screening for Depression: Recommendations and Rationale*, 2002. Available from: <http://www.uspreventiveservicestaskforce.org/3rduspstf/depression/depressrr.htm>.
46. Kroenke K, Spitzer R, et al. An Ultra-Brief Screening Scale for Anxiety and Depression: The PHQ–4, *Psychosomatics*. 2009; 50:613-621.
47. Varvogli L, Darviri C. Stress Management Techniques: Evidence-Based Procedures that Reduce Stress and Promote Health. *Health Science Journal*. 2011;5(2):74-89.
48. Paturel A, Meditation as Medicine. Available from: <http://journals.lww.com/neurologynow/Fulltext/2012/08040/MeditationasMedicine.9.spx>.
49. Evans M, *Yoga, Tai Chi, Massage, Therapies & Healing Remedies: Natural Ways*. London: Hermes House; 2003.
50. Richardson KM, Rothstein HR. Effects of Occupational Stress Management Intervention Programs: A meta-analysis. *J Occ Health Psychol*. 2008;13(1):69-93.
51. Nakamura J, Csikszentmihalyi M. Flow theory and research. In: Snyder CR, Lopez SJ, eds. *Handbook of positive psychology*. Oxford: Oxford University Press; 2009. p.195-206.

52. U.S. Department of Health and Human Services. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2010. *The Health Benefits of Smoking Cessation: A Report of the Surgeon General.*
53. U.S. Department of Health and Human Services. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2004. *The Health Consequences of Smoking: A Report of the Surgeon General.*
54. U.S. Department of Health and Human Services. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2010. *How Tobacco Smoke Causes Disease: The Biology and Behavioral Basis for Smoking-Attributable Disease: A Report of the Surgeon General.*
55. The US Public Health Service Guidelines for Treating Tobacco Use and Dependence, Update, Tobacco Use and Dependence Guideline Panel, Treating Tobacco Use and Dependence: 2008 Update. US Department of Health and Human Services; 2008 May.
56. Bickart K, Wright CI, et al. Amygdala volume and social network size in humans. *Nat Neurosci.* 2011;14(2):163-164.
57. Ornish D. *Love and Survival: The Scientific Basis for the Healing Power of Intimacy.* New York: Harper Perennial; 1999.
58. Uchico BN, Cacioppo JT, Kiecolt-Glaser JK. The relationship between social support and physiological processes: A review with emphasis on underlying mechanism and implications for health. *Psychological Bulletin.* 1996;119:448-531
59. Brummett BH, Barefoot JC, et al. Characteristics of socially isolated patients with coronary artery disease who are at elevated risk for mortality. *Psychosom Med.* 2001;63:267-272.
60. Cohen S, Gottlieb BH, Underwood L. Social relationships and health. In: Cohen S, Underwood L, Gottlieb BH, eds. *Social Support Measurement and Interventions: A Guide for Health and Social Scientists.* New York: Oxford University Press; 2000.
61. Hughes M, Waite L, et al. A Short Scale for Measuring Loneliness in Large Surveys: Results From Two Population-Based Studies. *Research on Aging.* 2004;26(6):655-672.
62. Rosenberg M. *Nonviolent Communication: A Language of Life, 2<sup>nd</sup> ed.* Encinitas: Puddledancer Press; 2003.
63. Powers B, Trinh J, Bosworth H. Can This Patient Read And Understand Written Health Information? *JAMA.* 2010;304(1):76-84.
64. Weiss B, et al. Quick Assessment of Literacy in Primary Care: The Newest Vital Sign. *Annals of Family Medicine.* 2005;3(6):514-522.
65. Sobel D. Rethinking Medicine: Improving Health Outcomes With Cost-Effective Psychosocial Interventions. *Psychosomatic Medicine.* 1995; 57(3):234-244.

## BIBLIOGRAPHY/RECOMMENDED READING FOR LM PRACTITIONERS

- Abela GS, Kusai A. Cholesterol crystals rupture biological membranes and human plaques during acute cardiovascular events-a novel insight into plaque rupture by scanning electron microscopy. *Scanning*. 2006;28.1:1-10.
- Adam TC, Empel ES. Stress eating and the reward system. *Physiology & Behavior*. 2007;91:449-458.
- American College of Preventive Medicine. Lifestyle Medicine- Evidence Review. Available from: <http://www.acpm.org/resource/resmgr/lmi-files/lifestylemedicine-literature.pdf>.
- American College of Sports Medicine Exercise and Type 2 Diabetes: American College of Sports Medicine and the American Diabetes Association: Joint Position Statement. *Medicine and Science in Sports and Exercise*. 2010;42:2282-2303.
- American Diabetes Association: Standards of Medical Care in Diabetes-2011. *Diabetes Care*. 2011;34(Suppl. 1):S11-S51.
- American Heart Association Scientific Statement. Exercise and Physical Activity in the Prevention and Treatment of Atherosclerotic Cardiovascular Disease. *Circulation*. 2003;107:3109-3116.
- American Psychological Association, Stress in America Findings, 2010. <http://www.apa.org/news/press/releases/stress/index.aspx>.
- Anderson, J., W., et al. Carbohydrate and Fiber Recommendations for Individuals with Diabetes: A Quantitative Assessment and Meta-Analysis of the Evidence; *Journal of the American College of Nutrition*. 2004;23.1:5-17.
- Baer HJ, Glynn RJ, Hu FB, Hankinson SE, Willett WC, Colditz GA, Stampfer M, Rosner B. Risk factors for mortality in the nurses' health study: a competing risks analysis. *Am J Epidemiol*. 2011;173(3):319-29.
- Barnard N. *Dr. Neal Barnard's Program for Reversing Diabetes: The Scientifically Proven System for Reversing Diabetes without Drugs*. New York: Rodale Inc; 2007.
- Barnard ND, et al. A Low-Fat Vegan Diet Improves Glycemic Control and Cardiovascular Risk Factors in a Randomized Clinical Trial in Individuals With Type 2 Diabetes. *Diabetes Care*. 2006; 29 (8):1777-83.
- Barnard ND, Weissinger R, Jaster B. *Nutrition Guide for Clinicians 2nd Edition*. Washington D.C.:Physicians Committee for Responsible Medicine; 2009.
- Barnard ND. *21-Day Weight Loss Kickstart: Boost Metabolism, Lower Cholesterol, and*

*Dramatically Improve Your Health*. New York: Hachette Book Group; 2011.

Berkman L. The role of social relations in health promotion. *Psychosom Med*, 1995;57:245–54.

Berkman LF, Glass T., Social integration, social networks, social support, and health, In: Berkman LF, Kawachi I, eds. *Social Epidemiology*. New York: Oxford; 2000.

Broadwell S, Light K, Family support, and cardiovascular responses in married couples during conflict and other interactions, *Int J Behav Med*. 1999;6:40-63.

Brummett BH, Barefoot JC, Siegler IC, Clapp-Channing NE, Lytle BL, Bosworth HB, Williams RB Jr, Mark DB. Characteristics of socially isolated patients with coronary artery disease who are at elevated risk for mortality. *Psychosom Med*. 2001;63:267–272.

Brunner EJ, et al. Prospective effect of job strain on general and central obesity in the Whitehall II study. *American Journal of Epidemiology*. 2007;165:828-837.

Burke AP, et al. Coronary risk factors and plaque morphology in men with coronary disease who died suddenly. *New England Journal of Medicine*. 1997;336.18:1276-1282.

Cacioppo JT, Patrick W. *Loneliness: Human Nature and the Need for Social Connection*. New York: W.W. Norton & Co.; 2008.

Campbell TC, Campbell TM. *The China Study*. Dallas: BenBella Books, Inc.; 2006.

Carr A. *Allen Carr's Easy Way to Stop Smoking*. London: Arcturus Publishing Ltd., 2009.

Claiborn J, and Pedrick C. *The Habit Change Workbook*. Oakland: New Harbinger Publications, Inc.; 2001.

Cohen S, et al. A global measure of perceived stress. *Journal of Health and Social Behavior*. 1983;24;385.

Cohen S, Doyle WJ, Skoner DP, Rabin BS, Gwaltney JM Jr. Social ties and susceptibility to the common cold. *JAMA*. 1997;277:1940-44.

Cohen S, Gottlieb BH, Underwood L. (2000). Social relationships and health. In: Cohen S, Underwood L, Gottlieb BH, eds, *Social Support Measurement and Interventions: A Guide for Health and Social Scientists*. Oxford: Oxford University Press; 2000.

Cooper Z, Fairburn Z, Hawker Z. *Cognitive-Behavioral Treatment of Obesity: A Clinician's Guide*. New York: The Guilford Press; 2004.

Csikszentmihayi M. *Flow: The Psychology of Optimal Experience*. New York: Harpers Collins Publishers; 1990.



Davis B, Barnard T. *Defeating Diabetes*. Summertown, TN: Healthy Living Publications; 2003.

Doe M. *Busy but Balanced: Practical and Inspirational Ways to Create a Calmer, Closer Family*. New York: St. Martin's Griffin; 2001.

Donnelly JE, Blair SN, Jakicic JM, Manore MM, Rankin JW, Smith BK. American College of Sports Medicine Position Stand. Appropriate intervention strategies for physical activity, weight loss and prevention of weight regain for adults. *Medicine and Science in Sports & Exercise*. 2009;41:459-471.

Dumm T. "Loneliness as a Way of Life." Cambridge: Harvard University Press; 2008

Durstine J, Moore G, Painter P, Roberts S. *ACSM's Exercise Management for Persons with Chronic Diseases and Disabilities-3rd Edition*. Champaign: Human Kinetics; 2009.

Esselstyn CB. *Prevent and Reverse Heart Disease*. New York: Penguin Group; 2007.

Evans P. *The Verbally Abusive Relationship: How to Recognize it and How to Respond, 2nd expanded edition*. New York: Adams Media; 1996.

Feldman MD, Christensen JF. *Behavioral Medicine in Primary Care, A Practical Guide*. New York: Lange Medical Books, McGraw-Hill; 2003.

Ferdowsian HR, Barnard, ND. Effects of plant-based diets on plasma lipids. *The American journal of cardiology*. 2009;104.7:947-956.

Fuhrman J. *Eat for Health*. New York: Time Warner Book Group; 2008.

Garber CE, Blissmer B, et al. American College of Sports Medicine position stand. Quantity and quality of exercise for developing and maintaining cardiorespiratory, musculoskeletal, and neuromotor fitness in apparently healthy adults: guidance for prescribing exercise. *Med Sci Sports Exerc*. 2011; 43(7):1334-59.

Hendricks G, Hendricks K. *Lasting Love: The 5 Secrets of Growing a Vital, Conscious Relationship*. New York: Rodale Books; 2004.

House F, Seale SA, Newman IB. *30 Day Diabetes Miracle*. New York: Penguin; 2008

House JS. *Work stress and social support*. Reading: Addison-Wesley; 1981.

House JS, Landis KR, Umberson D. Social relationships and health. *Science*. 1988;241:540-5.

Hyman M. *Ultrametabolism*. New York: Scribner; 2006.

Jonas S, Phillips E. *ACSM's Exercise is Medicine*, Philadelphia: Lippincott Williams

& Wilkins; 2009.

Katz D. *Nutrition in Clinical Practice: A Comprehensive, Evidence-Based Manual for the Practitioner (Nutrition in Clinical Practice), 2nd Ed.* Philadelphia: Lippincott, Williams and Wilkins; 2008.

Kiecolt-Glaser JK, Newton TL. Marriage and health: his and hers. *Psychol Bull.* 2001;127:472-503.

King N, Hopkins M, Beneficial Effects of Exercise: Shifting The Focus From Body Weight to Other Markers of Health. *Br J Sports Med.* 2009;43:924–927.

Kroenke K, Spitzer R, et. al. An Ultra-Brief Screening Scale for Anxiety and Depression: The PHQ–4. *Psychosomatics.* 2009;50:613-621.

Kyrou I, Tsigos C. Hypothalamic pituitary-adrenal axis, cytokines, and metabolic syndrome. *Obesity and Metabolism.* 2006;2:116-126.

Li XH, et al. Baseline psychological stress and ovarian norepinephrine levels negatively affect the outcome of in vitro fertilization. *Gynecol Endocrinol,* 2011;27(3):139-143.

Lincoln KS. Social Support, negative social interactions, and psychological well-being. *Soc Serv Rev.* 2000;74.2:231-52.

Linley P, Joseph S. *Positive Psychology in Practice.* Hoboken: John Wiley and Sons, Inc; 2004.

Lynch JJ. *The Broken Heart.* New York: Basic Books; 1979.

Lyubomirsky S. *The How of Happiness.* New York: The Penguin Press; 2007.

Marcus B, Forsyth L. *Motivating People to be Physically Active.* Champaign: Human Kinetics; 2009.

McGregor BA, Antoni MH. Psychological intervention and health outcomes among women treated for breast cancer; a review of stress pathways and biological mediators. *Brain Behav Immun.* 2009;23(2):159-166.

McLean R, Jahnke R. *The Circle of Life Facilitator Training Manual (15, 32).* Santa Barbara: Health Action; 2002.

Moore M, Tschannen-Moran B. *Coaching Psychology Manual.* Baltimore: Wellcoaches Corporation; 2010.

Mullins J, Swift K, Weil A. *Inside Tract: Your Good Gut Guide to Great Digestive Health.* New York:Rodale; 2011.

Mulrow CD, Williams JW Jr, Chiquette E, et al. Efficacy of newer pharmacotherapies for treating depression in primary care patients. *Am J Med.* 2000;108:54-64.

National Heart Lung and Blood Institute. How Does Smoking Affect the Heart and Blood Vessels? [cited 2012 April 10] Available from: [www.nhlbi.nih.gov/health/health-topics/smo/benefits.html](http://www.nhlbi.nih.gov/health/health-topics/smo/benefits.html), pulled from website 4/10/2012.

Nemeroff CB, Vale WW. The neurobiology of depression in roads to treatment and new drug discovery. *Journal of Clinical Psychiatry.* 2005;66:5-13.

Noffsinger E. *Running Group Visits in Your Practice.* New York: Springer; 2009.

Olds J, Schwartz RS. *The Lonely American: Drifting Apart in the Twenty-First Century.* Boston: Beacon Press; 2010.

Ornish D. *Dr. Dean Ornish's Program for Reversing Heart Disease.* New York: Ballantine Books; 1996.

Ornish D. *The Spectrum : A Scientifically Proven Program to Feel Better, Live Longer, Lose Weight, and Gain Health.* New York: Ballantine Books; 2007.

Otten JJ, Hellwig JP, Meyers LD, editors. Dietary DRI Reference Intakes, The Essential Guide to Nutrient Requirements. National Academies Press; Washington, DC:2006.

Pedersen A, et al. Influence of Psychological stress on upper respiratory infection. A Meta-analysis of prospective studies. *Psychosom Med.* 2010;72(8):823-832.

Pescatello LS, Franklin BA, Fagard R, Farquhar WB, Kelley GA, Ray CA. American College of Sports Medicine position stand. Exercise and Hypertension. *Medicine and Science in Sports and Exercise.* 2004;36(3):533-553.

Pignone M, Gaynes BN, Rushton JL, et al. Screening for Depression. Systematic Evidence Review No. 6 (Prepared by the Research Triangle Institute-University of North Carolina Evidence-based Practice Center under Contract No. 290-97-0011). AHRQ Publication. No. 02-S002. Rockville: Agency for Healthcare Research and Quality, May 2002.

Prochaska JO, Norcross JC, Diclemente CC. *Changing for Good.* New York: Avon Books; 1994.

Putnam R. Bowling alone: the collapse and revival of American community. New York: Simon & Schuster; 2000.

Rankin P, et al. Effectiveness of a Volunteer-Delivered Lifestyle Modification Program for Reducing Cardiovascular Disease Risk Factors. *Am J Cardiol.* 2012;109:82-86.

Ratey J. *Spark, Revolutionary New Science of Exercise and the Brain.* New York: Little,

Brown and Company; 2008.

Raw M, McNeill A, West R. Smoking cessation: Evidence based recommendations for the health care system. *BMJ*. 1999;318:182-5

Rice VH. *Handbook of Stress, Coping, and Health: Implications for Nursing Theory, and Practice*. New York City: Sage Publications; 2011

Riesman D, Glazer N, Denney R. *The Lonely Crowd: A Study of the Changing American Character*. New Haven: Yale University Press; 2001.

\*\*Rimer B, and Glanz K, Theory At A Glance. National Cancer Institute and NIH. <http://www.cancer.gov/cancertopics/cancerlibrary/theory.pdf>.

Rollnick S, Miller WR, Butler C. *Motivational Interviewing in Health Care: Helping Patients Change Behavior*. New York, NY: Guilford Press; 2008.

Seale S, Sherard L, Fleming D. *The Full Plate Diet: Slim Down, Look Great, Be Healthy!*. Austin: Bard Press; 2009.

Seeman TE, Berkman LF, Blazer D, Rowe JW. Social ties and support and neuroendocrine functions: The MacArthur studies of successful aging. *Annals of Behavioral Medicine*. 1994;16:95-106.

Seligmann M. *Authentic Happiness: Using the New Positive Psychology to Realize Your Potential for Lasting Fulfillment*. New York: Free Press; 2002.

Seligmann M. *Flourish: A Visionary New Understanding of Happiness and Well-being*. New York: Free Press; 2011.

Servan-Schreiber D. *Anticancer*. 2nd ed. New York: Viking Press; 2009.

Simon GE, VonKorff M. Recognition, management, and outcomes of depression in primary care. *Arch Fam Med*. 1995;4:99-105.

Spring B, Schneider K, McFadden HG, Vaughn J, Kozak AT, Smith M, et al. Multiple Behavior Changes in Diet and Activity: A Randomized Controlled Trial Using Mobile Technology. *Arch Intern Med*. 2012;172(10):789-96.

Spruill TM. Chronic psychosocial stress and hypertension. *Curr Hypertens Rep*. 2010;12(1):10-16.

Tabas I. Consequences of cellular cholesterol accumulation: basic concepts and physiological implications *J Clin Invest*. 2002;110(7):905–911.

Uchico BN, Cacioppo JT, Kiecolt-Glaser JK. The relationship between social support and physiological processes: A review with emphasis on underlying mechanism and implications for health. *Psychological Bulletin*. 1996;119:448-531.

Umberson D. Family status and health behaviors: social control as a dimension of social integration. *J Health Soc Behav*. 1987;28:306-19.

US Department for Health and Human Services. *2008 Physical Activity Guidelines for Americans*. Washington, DC:2008.

U.S. Department of Health and Human Services. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2010. *How Tobacco Smoke Causes Disease: The Biology and Behavioral Basis for Smoking-Attributable Disease: A Report of the Surgeon General*.

U.S. Department of Health and Human Services. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2010. *The Health Benefits of Smoking Cessation: A Report of the Surgeon General*.

U.S. Department of Health and Human Services. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2004. *The Health Consequences of Smoking: A Report of the Surgeon General*.

U.S. Preventive Services Task Force. Screening for Depression: Recommendations and Rationale. *Ann Intern Med*. 1997;12:439-45.

Varvogli L, Darviri C. Stress Management Techniques: evidence-based procedures that reduce stress and promote health. *Health Science Journal*. 2011;5(2):74-89.

Whooley MA, Avins AL, Miranda J, Browner WS. Case-finding instruments for depression: Two questions are as good as many. *J Gen Intern Med*. 1997;12:439-45.

Willett W. *Eat, Drink and Be Healthy*. New York: Free Press; 2005.

Williams JW, Hitchcock NP, Cordes JA, Ramirez G, Pignone M. Rational clinical examination. Is this patient clinically depressed? *JAMA*. 2002;287:1160-7.

Wu Z, Hart R. The effects of marital and nonmarital union transition on health. *Journal of Marriage & Family*. 2002;64:420-432.