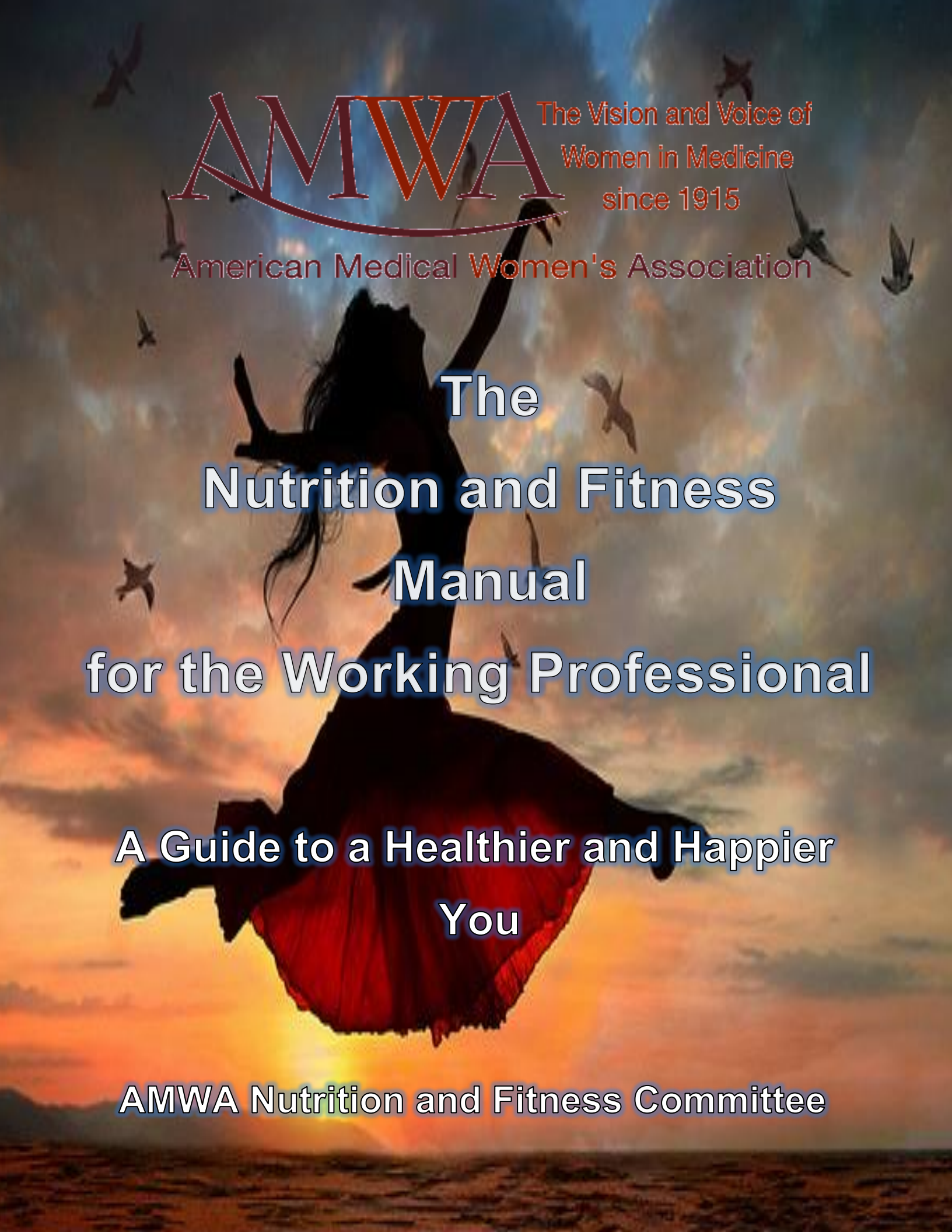

The Nutrition and Fitness Manual for the Working Professional

A Guide to a Healthier and Happier You

AMWA Nutrition and Fitness Committee

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CHAPTER ONE

Introduction

Welcome to the Nutrition and Fitness guidebook from the American Medical Women's Association (AMWA) Resident Division!

This guidebook is an initiative of the AMWA Resident Division in support of the President's Challenge Advocate Program to promote nutrition and fitness. The purpose of creating this book is to provide individuals the information needed to understand how to lead a healthy life through the foods they eat, the beverages they drink, and the physical activities they pursue.

A growing percentage of the United States population is overweight or obese. According to the Center for Disease Control and Prevention (CDC) more than one-third of adults in the United States (34.9%) are obese. Over the past 30 years, obesity has doubled in children ages 6-11 years (from 7% in 1980 to 18% in 2012) and quadrupled in adolescents ages 12-19 years (from 5% in 1980 to 21% in 2012).[1]

In general, the terms overweight and obesity are labels used to define excess body weight for a given height. These designations are determined by calculating the Body Mass Index (BMI). Being overweight or obese results from caloric imbalance – the calories expended are less than the calories consumed. Causes of this imbalance can be genetic, metabolic (i.e. low thyroid hormone), or environmental (i.e. high fat diet, sedentary lifestyle).[1] The importance of health assessments and the appropriate use of BMI will be discussed in the second chapter.

In 2013, the American Medical Association recognized obesity as a disease.[2] Obesity increases the risk for other diseases including coronary artery disease, hypertension, stroke, type 2 diabetes, hyperlipidemia, osteoarthritis, sleep apnea, and certain types of cancers (i.e. breast, colon, kidney, esophagus, thyroid).

With the many national initiatives established by President Barack Obama and First Lady Michelle Obama, our organization applied for the President's Challenge Advocate Program to help promote nutrition, fitness, and wellness.

Our goal here is to help with factors that can be changed such as diet, physical activity, and lifestyle behaviors. We also acknowledge the importance of having a primary care physician or other healthcare providers to assist each individual in assessing their health and creating a plan to stay healthy.

After reading this book, the reader will learn:

- The importance of maintaining a healthy BMI and/or ideal body weight (IBW) in children, adolescents, and adults
- Criteria for assessing cardiovascular and metabolic health
- Components of a healthy diet and how they influence your health
- Definition of calories and charts listing calorie counts for common foods and beverages
- Information on sample exercise regimens and their impact on your daily life
- Strategies for behavior modifications to promote a healthy diet and fitness plan
- Methods for maintaining your own personal health and sense of self

As a part of the guidebook, you will be provided information about additional resources including pedometers on mobile devices, recording of calories, and note-taking on both electronic applications and mobile devices to help jumpstart your optimal plan.

Thank you so much for your interest and support of AMWA. Coinciding with annual visits with a primary care physician, we hope that this guidebook will help educate you on the best options for a healthier lifestyle and happier you!

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CHAPTER TWO

The Importance of Cardiovascular and Metabolic Health Assessment

By Connie Newman, MD and Vanessa al Rashida, MD

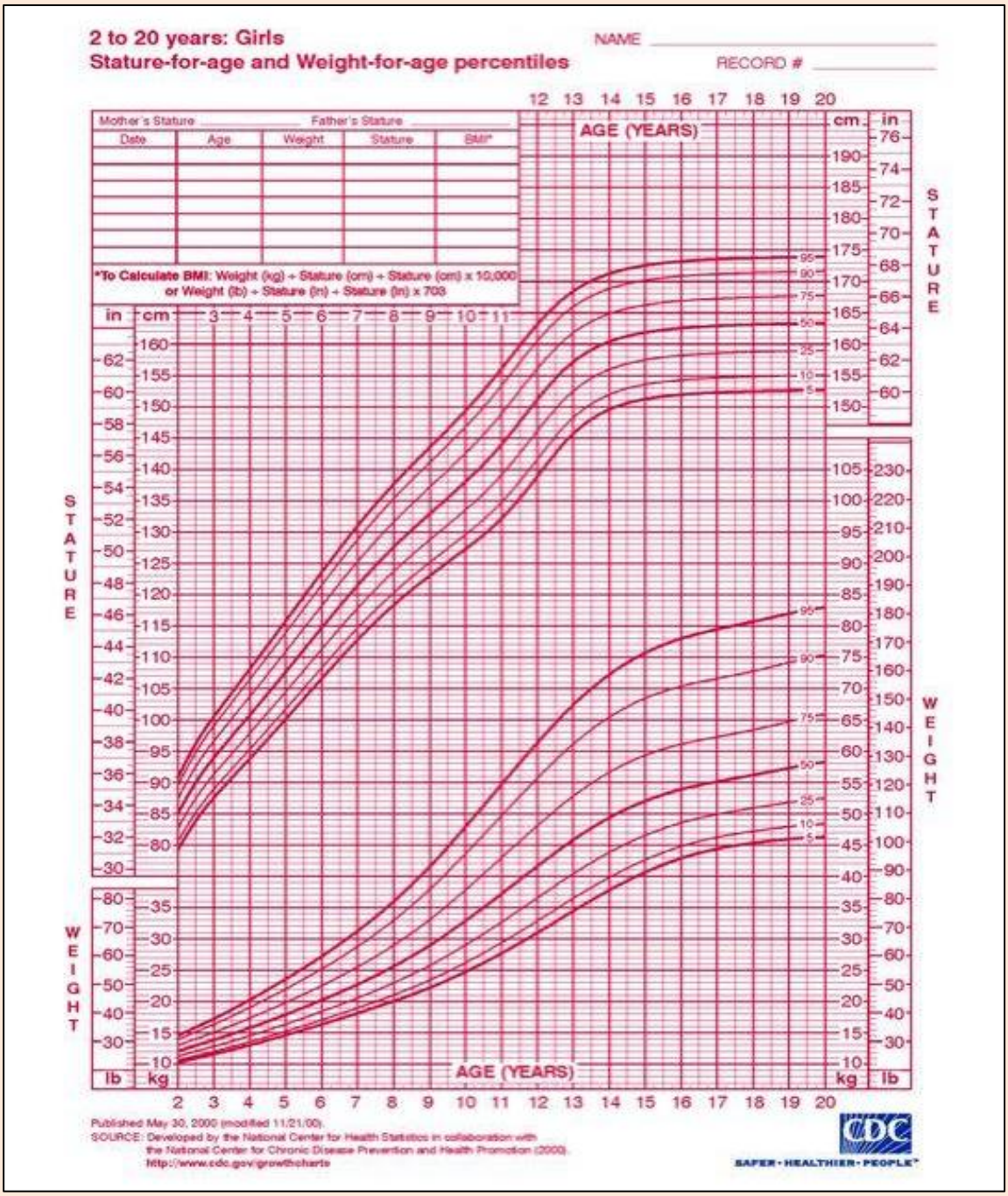
Introduction

Proper nutrition and physical activity are critical components of a healthy lifestyle for both children and adults and should not only make you feel better, but also help prevent cardiovascular and metabolic disease (1). It is important for every adult to know her/his weight, body mass index (BMI), cholesterol numbers and blood pressure. These and other risk factors for atherosclerotic cardiovascular disease (CVD) should be assessed in adults and also in children, at ages specified in guidelines. CVD risk factors could be due to genetic and/or environmental causes. Assessment of cardiovascular health includes measurement of BMI, waist circumference, hemoglobin A1C and/or fasting glucose, lipids and blood pressure as well as an evaluation of lifestyle: smoking history, physical activity, and dietary habits. In addition, it is important to obtain a family history of premature coronary heart disease, which is defined as a heart attack in a male first degree relative younger than 55 years old, or in a female first degree relative younger than age 65 years old (2).

Body Mass Index

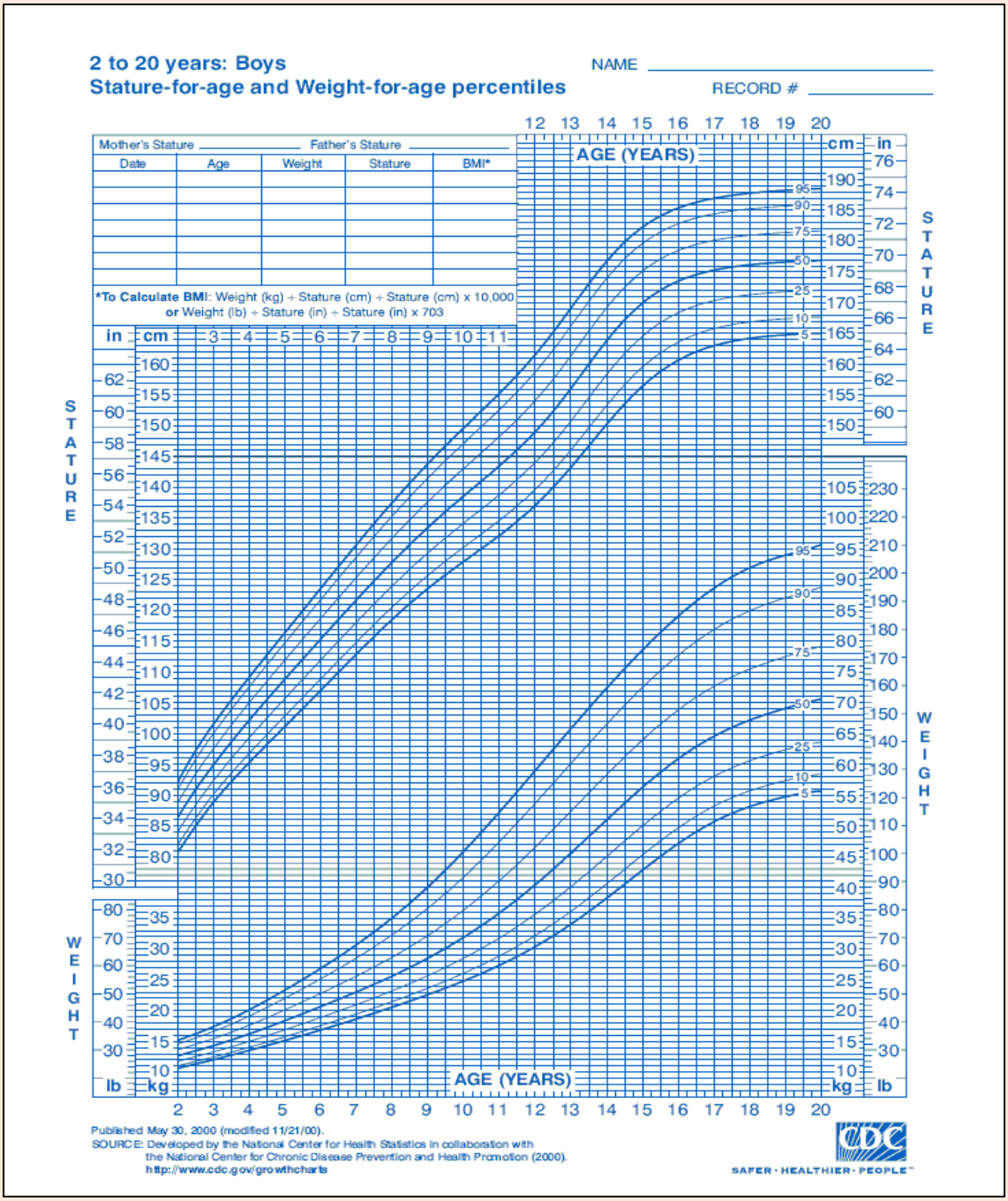
Body mass index (BMI) is used to identify people with an unhealthy weight. For children and adolescents age 2-19, CDC Growth Charts are used to measure the corresponding BMI-for-age and sex percentile. Table 1 and Table 2 show CDC Growth Charts for girls and boys age 2-20. However in adults, height and weight are needed to determine BMI, as shown in Table 3.

Table 1



From: Girls Stature-for-age and Weight-for-age. Clinical Growth Charts: Children 2 to 20 years (5th-95th percentile). Updated 4 August 2009. Centers for Disease Control and Prevention. Retrieved 13 December 2014 <http://www.cdc.gov/growthcharts/data/set2clinical/cj41c072.pdff>.

Table 2



From: Boys Stature-for-age and Weight-for-age. Clinical Growth Charts: Children 2 to 20 years (5th-95th percentile). Updated 4 August 2009. Centers for Disease Control and Prevention. Retrieved 13 December 2014 <http://www.cdc.gov/growthcharts/data/set1clinical/cj41c021.pdf>.

Table 3: Body Mass Index Chart

	Normal						Overweight					Obese										Extreme Obesity																
BMI	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
Height (inches)	Body Weight (pounds)																																			
58	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167	172	177	181	186	191	196	201	205	210	215	220	224	229	234	239	244	248	253	258
59	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173	178	183	188	193	198	203	208	212	217	222	227	232	237	242	247	252	257	262	267
60	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179	184	189	194	199	204	209	215	220	225	230	235	240	245	250	255	261	266	271	276
61	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185	190	195	201	206	211	217	222	227	232	238	243	248	254	259	264	269	275	280	285
62	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191	196	202	207	213	218	224	229	235	240	246	251	256	262	267	273	278	284	289	295
63	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197	203	208	214	220	225	231	237	242	248	254	259	265	270	278	282	287	293	299	304
64	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204	209	215	221	227	232	238	244	250	256	262	267	273	279	285	291	296	302	308	314
65	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324
66	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216	223	229	235	241	247	253	260	266	272	278	284	291	297	303	309	315	322	328	334
67	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223	230	236	242	249	255	261	268	274	280	287	293	299	306	312	319	325	331	338	344
68	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230	236	243	249	256	262	269	276	282	289	295	302	308	315	322	328	335	341	348	354
69	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236	243	250	257	263	270	277	284	291	297	304	311	318	324	331	338	345	351	358	365
70	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243	250	257	264	271	278	285	292	299	306	313	320	327	334	341	348	355	362	369	376
71	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250	257	265	272	279	286	293	301	308	315	322	329	338	343	351	358	365	372	379	386
72	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258	265	272	279	287	294	302	309	316	324	331	338	346	353	361	368	375	383	390	397
73	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265	272	280	288	295	302	310	318	325	333	340	348	355	363	371	378	386	393	401	408
74	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272	280	287	295	303	311	319	326	334	342	350	358	365	373	381	389	396	404	412	420
75	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279	287	295	303	311	319	327	335	343	351	359	367	375	383	391	399	407	415	423	431
76	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287	295	304	312	320	328	336	344	353	361	369	377	385	394	402	410	418	426	435	443

From: NHLBI Obesity Education Initiative Expert Panel. Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. Bethesda (MD): National Heart, Lung, and Blood Institute 1998 Sept Report No. 98-4083.

BMI is correlated with percent body fat but does not directly measure fat. BMI has a U-shaped relationship with mortality in adults (3). In prospective studies of about 900,000 adult participants, at levels of BMI greater than 22.5 kg/m^2, each 5 kg/m^2 increase in BMI was associated with approximately 30% increase in mortality overall, largely due to vascular causes and also due to diabetes, kidney disease, liver disease, and cancer. At levels below 22.5 kg/m^2, BMI was inversely associated with mortality, mainly due to respiratory disease and lung cancer (3).

In children, overweight is defined as BMI between the 85th and 95th percentile while obesity is defined as at or greater than the 95th percentile. Childhood obesity is continuing to rise and affects about one third of children in the United States. As in adults, obesity can cause health problems in children and adolescents such as hypertension, hypercholesterolemia, insulin resistance, joint and musculoskeletal problems, gastrointestinal-related problems, and increased psychosocial issues that can progress into adulthood (4). Increased adipose tissue is associated with insulin resistance, an abnormal lipid profile (elevated LDL, low HDL and high triglycerides), inflammation, and high blood pressure (5).

Clinically manifest atherosclerotic cardiovascular disease is rare in children and adolescents, but atherosclerosis has been identified in autopsies of Korean and Vietnam

War casualties who did not have clinical coronary heart disease (6). In addition in the Bogalusa Heart Study, autopsies in 204 young people found fatty streaks and fibrous plaques in the coronary arteries and showed that coronary atherosclerosis was strongly associated with cardiovascular risk factors, including elevations in BMI, systolic blood pressure, LDL cholesterol, and cigarette smoking (7).

Children who are overweight or obese should be evaluated with measurements of waist circumference, blood pressure, lipids, and a fasting plasma glucose level (or a 2 hour glucose during an oral glucose tolerance test) (5). The 2011 Pediatric Guidelines for Cardiovascular Health and Risk Reduction in children summarize age-specific recommendations for screening children and adolescents for hypertension, hyperlipidemia, diabetes, overweight/obesity, and tobacco exposure, and highlight the importance of family history (6). Treatment recommendations are provided including the use of medications. For children who are overweight or obese, a healthy diet, with an emphasis on low glycemic index foods and avoidance of saturated fat, increased physical activity, and weight loss will improve insulin resistance and the cardiovascular risk profile (8)

BMI in adults has been used to define overweight and obesity as shown in Table 4.

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Table 4: Classification of Obesity by BMI in Adults

Classification	BMI (kg/m2)
Normal weight	18.5-24.9
Overweight	25-29.9
Obesity	≥ 30
Class I	30-34.9
Class II	35-39.9
Class III	≥40

Treatment options for obesity in adults are currently based upon the level of BMI and associated co-morbidities (9). It should be recognized that BMI alone may not always be sufficient to estimate an individual's risk. BMI may be increased because of increased muscle, as in athletic individuals, or edema, and may be low in the elderly (10).

The Metabolic Syndrome

Waist circumference, a surrogate for abdominal fat, in addition to BMI, may provide a better estimation of risk for cardiovascular disease. Normal values for waist circumference vary by ethnicity. For North American / European men and women, normal values for waist circumference according to U.S. criteria are < 40 inches (< 102 cm) and < 35 inches (< 88 cm), respectively. Values above these cutpoints indicate abdominal obesity. Recommendations for waist circumference thresholds for abdominal obesity from international organizations vary. The International Diabetes Federation recommends waist circumference thresholds ≥ 94 cm (37 inches) and ≥ 80 cm (31 inches), for European men and women, respectively, if they are of European origin. In Asian populations, the threshold values for abdominal obesity are lower for men (≥ 85 cm in men and ≥ 80 cm in women) (11).

Patients with increased waist circumference may have the metabolic syndrome, which is a constellation of risk factors that together increase the risk of atherosclerotic cardiovascular disease (11). In the United States, the metabolic syndrome is diagnosed in individuals who have three or more of the criteria shown in Table 5.

Table 5: Criteria for Diagnosis of the Metabolic Syndrome in the United States †

Parameter	Cutpoints
Elevated waist circumference †	≥ 40 inches (≥ 102 cm) in males ≥ 35 inches (≥ 88 cm) in females
Elevated triglycerides	≥ 150 mg/dL (1.7 mmol/L) Or, on drug treatment for hypertriglyceridemia
Reduced HDL-C	< 40 mg/dL (1.03 mmol/L) in men < 50 mg/dL (1.3 mmol/L) in women
Elevated blood pressure	≥ 130 mm Hg systolic BP Or ≥ 85 mm Hg diastolic BP Or On antihypertensive drug treatment with a history of hypertension
Elevated fasting glucose	≥ 100 mg/dL Or, on drug treatment for elevated glucose
† Adapted from Grundy SM et al. (11). Some US adults of non-Asian origin (e.g., white, black, Hispanic) with marginally increased waist circumference (37-39 inches for men, and 31-34 inches for women) may have strong genetic contribution to insulin resistance and might benefit from lifestyle changes. Lower waist circumference cutpoints for Asian Americans appear to be appropriate: 35 inches (90 cm) and above for men and 31 inches (80 cm) and above for women.	

Underlying the metabolic syndrome are insulin resistance and obesity. Individuals with the metabolic syndrome have a very high risk of developing diabetes mellitus, and once diabetes mellitus develops, the risk of atherosclerotic cardiovascular disease (MI and stroke) increases substantially (11). Patients with metabolic syndrome should be treated initially with lifestyle therapies including a healthy diet, weight reduction, and increased physical activity. If lipid abnormalities persist, and non-HDL-C is elevated (see below for definition of non-HDL-C), lifestyle changes should be intensified and medications, particularly statins, should be considered.

Diabetes Mellitus

Diabetes mellitus has long-term microvascular complications, including impairment of renal function and retinopathy. In addition, diabetes mellitus confers a very high risk of cardiovascular disease (heart attack and stroke) and individuals with diabetes mellitus benefit not only from control of blood sugar, but also from control of blood pressure, lipids, reduction in body weight, increased physical activity, and smoking cessation..

The American Diabetes Association (ADA) recommends that testing to diagnose diabetes and prediabetes in asymptomatic individuals should be considered in adults of any age who have a BMI of 25 kg/m^2 or greater, and who have one or more additional risk factors for diabetes (physical inactivity, first degree relative with diabetes, high risk race/ethnicity (African American, Latino, Native American, Asian American, Pacific Islander), women with gestational diabetes mellitus or who delivered a baby weighing more than 9 pounds), blood pressure ≥ 140/90 or on antihypertensive therapy, HDL-C below 35 mg/dL and/or triglycerides above 250 mg/dL, polycystic ovarian disease, hemoglobin A1C ≥ 5.7 % or impaired glucose tolerance or impaired fasting glucose on prior testing, clinical disorders associated with insulin resistance (eg, severe obesity, acanthosis nigricans), or history of cardiovascular disease) (12). In adults without these risk factors, screening for diabetes should begin at age 45. If tests are normal, repeat testing should be done at least every 3 years. Tables 4 and 5 show ADA criteria for the diagnosis of diabetes and prediabetes. Cardiovascular risk factors should be assessed in patients with diabetes and prediabetes, and appropriate lifestyle changes and other therapies instituted as appropriate.

Table 6: Criteria for Diagnosis of Diabetes Mellitus

Lab Test	Comments
Hemoglobin A1C ≥ 6.5% * OR	Test should be performed in a laboratory using a method that is NGSP certified and standardized to the DCCT assay.
FPG ≥ 126 mg/dL (7.0 mmol/L) * OR	Fasting is defined as no caloric intake for at least 8 hours
2 hour PG ≥ 200 mg/dL (11.1 mmol/L) during OGTT * OR	The test should be performed as defined by the World Health Organization, using a glucose load containing the equivalent of 75 grams anhydrous glucose dissolved in water
Random plasma glucose ≥ 200 mg/dL	In a patient with classic symptoms of hyperglycemia or hyperglycemic crisis
*Results should be confirmed with a repeat test, if hyperglycemia has not been demonstrated. Abbreviations: NGSP, National Glycohemoglobin Standardization Program; DCCT, Diabetes Control and Complications Trial; FPG, fasting plasma glucose; OGTT, oral glucose tolerance test Table adapted from (12).	

Table 7: Factors that Increase the Risk of Diabetes (prediabetes)

FPG 100 mg/dL to 125 mg/dL, also known as IFG or impaired fasting glucose OR
2-hour PG in the 75 g OGTT 140 mg/dL to 199 mg/dL OR
Hemoglobin A1C 5.7 – 6.4%
Abbreviations: FPG, fasting plasma glucose; PG plasma glucose; OGTT, oral glucose tolerance test Table adapted from (12).

Cholesterol and Triglycerides

A lipid panel (cholesterol, LDL-C, HDL-C and triglycerides) usually performed in the fasting state is an essential part of assessment of cardiovascular health, and the risk of myocardial infarction and stroke in adults.

In children, pediatric guidelines recommend universal lipid screening between the ages of 9 to 11 and 17 to 21 in order to detect genetic disorders such as familial hypercholesterolemia (6). Importantly, for children between the ages of 2 and 8 years, a fasting lipid profile is strongly recommended when there is a family history (parent, grandparent or sibling) of premature CVD, or a parent with total cholesterol of 240 or greater or known dyslipidemia, or if the child has diabetes, hypertension or a BMI in the 95th percentile or higher, or smokes (6).

LDL-C (the “bad” cholesterol) is the principal source of cholesterol for atherosclerotic plaques, and the level of LDL-C correlates with coronary heart disease in epidemiological studies. The level of non-HDL-C (which represents all the cholesterol containing particles that are atherogenic) also correlates with risk of cardiovascular disease events. Non-HDL-C can be easily calculated by subtracting HDL-C from total cholesterol. Large studies of the statin class of drugs (which reduce cholesterol by inhibition of cholesterol synthesis in the liver and subsequent up-regulation of LDL receptors) have found that reducing LDL-C with statins reduces fatal and non-fatal myocardial infarction, ischemic stroke, and coronary

revascularization procedures (13). In previous cholesterol management guidelines from the National Cholesterol Education Program Adult Treatment Panel III (NCEP ATP III) a level of LDL-C below 100 mg/dL was considered optimal and goals for LDL-C were established based upon the degree of risk (2, 14). Non-HDL–C was a secondary target, with a goal 30 mg/dL higher than the LDL-C goal.

The more recent recommendations in the 2013 AHA/ACC guidelines for cholesterol management (1) were based mainly upon evidence from randomized controlled clinical trials, and do not provide a classification of cholesterol and triglyceride levels, as did the previous guidelines (2). In the 2013 guidelines, LDL-C levels above 190 mg/dL are considered very high and should be further evaluated for potential genetic causes, and treated with statin drugs in addition to lifestyle measures. Other groups of patients deemed to benefit from statin therapy are individuals with clinical atherosclerotic cardiovascular disease (ASCVD) and also people between the ages of 40 and 79 years, who have diabetes without clinical ASCVD. Other adults between the ages of 40 and 79 years, should undergo cardiovascular risk assessment using a 10-year risk calculator (available online). Statin treatment should be considered and discussed with the patient if the 10-year risk of ASCVD is greater than 7.5%. These guidelines do not address elevated triglycerides, which are generally considered to be normal when the level is below 150 mg/dL. Severe elevations in triglycerides (above 500 mg/dL) increase the risk of pancreatitis and must be treated with a combination of lifestyle measures (weight loss, increased physical activity, diet low in simple sugars, foods with a low glycemic index, avoidance of alcohol) and concomitant pharmacological therapy.

Levels of HDL-C (the “good” cholesterol) are inversely correlated with cardiovascular risk. However there are currently no medications that have been proven to substantially raise HDL-C and also reduce cardiovascular events.

Blood pressure

Hypertension, if untreated, is associated with myocardial infarction, stroke, kidney failure and death. The recent guideline for the management of high blood pressure in adults from the eighth Joint National Committee (JNC 8) revised cutpoints for blood pressure treatment, raising them for individuals older than 60 years of age (15). The JNC 8 panel recommended blood pressure goals of less than 150/90 for people 60 years of age and older, and less than 140/90 for people younger than 60 years of age. The same blood pressure goal of less than 140/90 was recommended for hypertensive adults with diabetes or non-diabetic chronic kidney disease. The guidelines panel stated that while these evidence-based recommendations should meet the needs of most patients, the recommendations should not be a substitute for clinical judgment. The JNC 8 guidelines, compared to the previous JNC 7 guidelines, have increased the target blood pressure for adults 60 years of age and older, and also for people with diabetes, and have elicited a lot of controversy (16).

CHAPTER SUMMARY

Proper nutrition and physical activity are important components of a healthy lifestyle for both children and adults. In children and adolescents, guidelines strongly recommend evaluation of body weight, blood pressure, and lipids at specific ages, and screening for diabetes mellitus in children/adolescents who are overweight or obese. Healthy living is a critical component of obesity prevention. For those young people who are already overweight or obese, lifestyle changes are essential, and associated cardiometabolic risk factors should be assessed.

Cardiovascular risk assessment of adults should include an evaluation of diet, physical activity, smoking history, family history of premature heart disease, as well as BMI, waist circumference, fasting blood glucose and/or hemoglobin A1C, lipids, and blood pressure. Individuals with obesity, diabetes mellitus, pre-diabetes, the metabolic syndrome, hypercholesterolemia, and/or hypertension have a higher risk of cardiovascular disease, including MI and stroke.

Notes

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CHAPTER THREE

What's in Your Food? Components of a Healthy Diet

By Parin Patel, MD

A healthy diet contains the necessary balance of macronutrients, micronutrients, fiber and water. Macronutrients provide the caloric content of food and include carbohydrates, proteins, and fats. While many fad diets advocate decreasing or even eliminating an entire category of macronutrients, the general consensus amongst health professionals is that a balanced diet includes all three macronutrients. In general, carbohydrates should contribute to 45-65% of total calorie intake, fats should consist of 25-35% of the daily caloric intake, and proteins should provide 15-35% of calories (1). An individual's total calorie intake should align with his/her weight management goals.

While carbohydrates constitute the major source of calories, it is important to limit the intake of simple sugars and foods with a high glycemic index. One serving of carbohydrates is about 15 grams, and about 6-8 servings per day with at least half being from high-fiber, whole-grain sources is recommended (1). Furthermore, consumption of fruits and vegetables helps increase daily fiber intake while reducing overall caloric intake. Whole grains in place of refined grains will also add fiber to the diet and help control blood pressure.

Fats fall into two categories: saturated and unsaturated. Consume unsaturated fats from liquid vegetable oils, seeds, nuts, and fish in place of saturated fats from butter and meats to reduce the risk of cardiovascular disease. Unsaturated fats are further divided into monounsaturated and polyunsaturated fats, both with varied proven health benefits. Omega-3 polyunsaturated fatty acids eicosapentaenoic acid (EPA) and docosohexaenoic acid (DHA) are derived from cold water fish, like salmon or mackerel, and some studies have found beneficial effects on cardiovascular health. The American Heart Association recommends 2 servings a week to prevent cardiovascular disease (1). Doses greater than 3 grams per day can cause excess bleeding, are not recommended, and anyone who takes this amount should consult a physician. Sources of monounsaturated fatty acids include

olive oil, canola oil, peanut oil, avocados, peanut butter, almonds, walnuts, and sunflowers seeds (2). Limit intake of saturated and trans fats.

Lastly, protein sources should be varied and include both plant and animal sources. Daily meal plans should have no more than 6 ounces of low-fat animal protein. Low-fat dairy provides an excellent source of protein while assisting in reducing weight and blood pressure, while providing essential micronutrients. Plant proteins include beans, lentils, some nuts, and certain vegetables, like broccoli, kale, and spinach. Like with carbohydrates, plant sources of protein are encouraged because of their multiple other health benefits (1, 2).

Maintaining macronutrient intake as recommended and eating a variety of foods among the macronutrient groups will provide adequate micronutrient intake for most healthy individuals. Micronutrients are the essential vitamins and minerals that our bodies require to perform numerous day-to-day functions, including generating new cells, contracting muscles, and sending signals from one part of the body to another. Since the body does not generate vitamins and minerals, they must be obtained from the diet. Furthermore, it is important to keep in mind one major difference between vitamins and minerals. Vitamins are organic and can be easily broken down and degraded by heat or acid. Minerals, on the other hand, are inorganic and resistant to biochemical forces. Thus, storing and preparing foods impacts total vitamin consumption, but not mineral intake.

Key vitamins include vitamin A, B, C, D, E, and K. Vitamins A, D, E, and K are fat-soluble and therefore are stored in the body for long periods of time and excessive consumption can be hazardous. Water-soluble vitamins, like Vitamins B and C are excreted easily and cannot be stored, and thus toxicity is unlikely. This also means that they must be consumed regularly.

Similar to vitamins, the recommended daily intake of minerals also varies based on the mineral. Well-known minerals include calcium, iron, and potassium, and they need to be consumed in relatively large amounts. This is usually easily possible for most people because they present in many foods, however, some may require supplements (1). Other minerals are not needed in large quantities and smaller amounts are best. Such minerals include magnesium, selenium, and chromium (2).

Generally, a balanced diet provides all necessary vitamins and minerals. However, individuals with certain dietary restrictions or medical conditions may benefit from supplementation of specific nutrients. For example, vegetarians and vegans often find it difficult to consume sufficient vitamin B12 in their diet and may benefit from supplementation. Similarly, women with osteopenia or risk of osteoporosis may consider increasing their calcium and vitamin D intake. While some experts recommend this be done by consuming more foods that are either naturally enriched or artificially fortified with calcium and vitamin D, sometimes concentrated supplements are needed. Calcium can easily come from the diet, but this is not the case for vitamin D. Therefore, most physicians recommend supplements with vitamin D, especially for people who live in northern latitudes and/or use sunblock (1). Another situation where dietary intake or supplementation may be recommended is in individuals with iron-deficiency anemia. This is common in young menstruating women who may have heavier menses and in pregnant women due to the increase in blood volume.

While most consider macronutrients and micronutrients the entirety of the human diet, a few other key components are not included in these two large categories: fiber and water. The majority of our bodies comprise of water and it is essential to our bodies' major and minor functions. Water needs to be replenished on a daily basis and various opinions exist on the optimum amount of daily water intake. Most experts however, will agree that about 8 glasses of water a day is optimal. This amount may vary from person to person, and individuals engaging in vigorous physical activities or spending several hours in the sun should consider drinking more water. If you want to increase your water intake, but don't specifically want to just drink plain water, consider adding a few slices of cucumber, orange, lemon or lime, strawberries, or drink hot or cold tea. Find your favorite way of drinking water and share it with your friends and colleagues!

And last, but not least: fiber. There are two types of fiber, soluble and insoluble. Soluble fiber dissolves in water, forming a gel which slows digestion, making an individual feel full longer and help control weight, blood sugar levels, and cholesterol levels. Insoluble fiber does not dissolve in water and primarily thickens the digested food particles, preventing constipation. Both types of fiber are important for a healthy diet and recommended daily intake is about 20-35 grams/day or 14 grams for every 1000 calories. Like vitamins and minerals, the best way to get your daily serving of fiber is through food, however, supplements may be used.

Soluble fiber is found in the following:

- Oatmeal
- Oat bran
- Nuts and seeds
- Most fruits (e.g. strawberries, blueberries, pears, and apples)
- Dry beans and peas

Insoluble fiber found in the following:

- Whole wheat bread
- Barley
- Brown rice
- Couscous
- Bulgur or whole grain cereals
- Wheat bran
- Seeds
- Most vegetables
- Fruits

The above discussed components of a healthy diet are by no means a thorough and complete detail of all the components of a healthy and balanced diet. They are the primary components and this information should be used to help guide your diet. The ideal diet differs for each person based on overall health, nutrition needs, and dietary preferences. I encourage you to explore the choosemyplate.gov website (3). Lastly, prior to making lasting changes to your diet, please consult your physician and discuss your current health and the needs of your body.

CHAPTER SUMMARY

Several key components of a balanced diet are macronutrients, micronutrients, water, and fiber. Macronutrients provide the caloric content of one's daily oral intake. Calories come from carbohydrates, fats, and proteins and it is critical to have an appropriate balance of these three macronutrients. When consuming carbohydrates, experts recommend whole grains over refined grains and limiting simple sugars and empty calories. Fats are generally divided into saturated, unsaturated, and trans fats. Monounsaturated and polyunsaturated fats are heart healthy, while saturated and trans fats should be limited. Overall, fats should comprise of 25-35% of total caloric intake. Proteins should be varied by eating both plant and animal sources. Micronutrients are vitamins and minerals, which allow our bodies to carry out routine, day-to-day functions. Generally both are obtained from a balanced diet, however, some individuals may benefit from supplements. We shouldn't forget that water is also a major component of a balanced diet. It is necessary for many cellular functions. Intake should be about 8 glasses/day and more if exercising or spending large amounts of time in the sun. Fiber rounds out a balanced diet. Soluble fiber dissolves in water and helps with controlling fullness, blood glucose levels, and cholesterol. Insoluble fiber thickens stool and prevents constipation. Daily intake of total fiber should be about 20-35 grams/day or about 14 grams/1000 calories.

Notes

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CHAPTER FOUR

The Good, the Bad, and the Calories

By Vanessa al Rashida, MD and Dana Bonaminio, MD

When you think of the word calories, what are the things that come to mind? Too much is bad? Too little is just right? Just the right number is not good enough? We live in a society where the idea of what is "healthy" maybe blurred with the idea of being "thin" and either being at or below our "ideal body weight." Most of the time, it is made out in commercials and the media that calories are bad and that the more you burn, the more happier you will be, weight-wise. There are many companies that have produced different pills and other weight-reducing products. Some medications have been approved by the U.S. Food and Drug Administration (FDA) for weight loss in people who are obese (BMI >30) or overweight with at least one co-morbidity. However other treatments are available over the counter that are not regulated by the FDA, which leads to the daunting task for health professionals to decipher the risks and benefits of these pills. Occasionally, these unregulated drugs may present more risks than benefits to patients.

During a health care visit, primary care physicians are usually the ones to ask about a patient's weight and educate on ways to reduce excess body fat. Treatment plans should initially include changes in diet, exercise, and if possible, the elimination of medications that cause weight gain. There may be a difference in opinion about the best weight loss diet, but in reality the best diet is the one that the patient will adhere to. As physicians, we were educated on the basic components in our diets that help give us energy and nourishment to our bodies (protein, carbohydrates, vitamins and minerals); however, most of us were not taught about the known methods that will help patients to reach or maintain their ideal body weight. Because of our limited knowledge and sadly our time to talk to our patients more about this, they are often referred to a dietitian or a nutritionist for advice.

To understand how to better utilize calories in our everyday life, we have to go back to the basics in order to help create the foundation necessary to approach the idea of calories and reaching an ideal body weight. In this chapter, you will learn about the definition of calories and the different methods that are currently available to utilize calories effectively in your life.

What are Calories?

The term "Calorie" is generally known as a unit of energy. Historically this term has gone through many changes in definition. Traditionally it is used to describe the amount of energy needed to raise a gram of water one degree Celsius. Also, one calorie equals 4.18 joules, which is a unit of work or energy in the International System of Units. However, this has been confused with the large Calorie, or kilocalorie, that has been used among people. When you are talking about one large Calorie, you are really referring to 1,000 calories. This measurement is of the calorific, heating, or metabolizing value of foods. Thus in reality, when "calories" are being measured, it is the kilocalories that are really being counted for dietary reasons. The kilo- prefix is omitted and in scientific notations, the capitalized calorie is used. For example, if a peach is listed as having 40 calories, it actually is 40,000 calories.

In nutrition it has been proposed that the kilojoule replace the kilocalorie as the unit of choice to discuss the energy value of food. The reason for this change was to help unify food scientists and other scientists in the nomenclature and their thoughts about the energy of food. The conversion factor was then to have one kilocalorie to equal 4.184 kilojoules. This interchange between the kilocalorie and kilojoules has started to be used in government publications; however, the term calorie is what continues to stay in the mainstream of society as a measurement of food energy.[1]

Now you have reviewed the basic science of calories. With this foundation we can move forward with how to apply calories to your everyday life.

What are Empty Calories?

According to the United States Department of Agriculture, empty calories are calories that do not provide a nutritional benefit to the body, and result in excess body fat and medical health problems such as diabetes and cardiovascular disease. Examples of where these empty calories come from are solid fats and added sugars. Solid fat is defined as fat that solidifies in room temperature. Examples of these are butter, beef fat, and shortening. Solid fats contain more saturated fats and/or trans fat than oils and are not healthy because they raise total and LDL cholesterol levels. Solid fats can be found naturally in some foods;

however, solid fats can be added to processed and pre-packaged foods. Added sugars are usually artificial (not natural), such as syrup, and are added to certain foods and beverages.

Below is a list of the majority of foods and beverages that contain empty calories that comprise the typical American diet:

- Cakes, cookies, pastries, and donuts (these items can have both solid fats and added sugars)
- Sodas, energy drinks, sport drinks, and fruit drinks (added sugars)
- Cheese (solid fats)
- Pizza (solid fats)
- Ice cream (solid fats and added sugars)
- Sausages, hot dogs, bacon, and ribs (solid fats)
- Alcohol[2]

Foods and beverages that have smaller portions of solid fats and added sugars would be better alternatives in order to help maintain or lose weight. It all comes down to comparing foods and beverages together by looking at the number of calories in them, and choosing the better alternative between them.

How Many Calories Should I Eat in Order to Stay Healthy?

Calories consumption varies with age, gender, height, weight, and level of physical activity. Generally speaking for adults, the U.S. Food and Drug Administration recommends that women should intake about 2,000 calories daily with 600 calories coming from fats (30% of 2,000) and that men should intake about 2,500 calories with 350 calories coming from fats (or 30% of the amount of calories consumed). Table 1 provides the general guidelines pertaining to the required number of total calories needed daily according to age, gender, and physical activity level.

Table 1

Estimated Calorie Needs per Day by Age, Gender, and Physical Activity Level[a] Estimated amounts of calories needed to maintain calorie balance for various gender and age groups at three different levels of physical activity. The estimates are rounded to the nearest 200 calories. An individual's calorie needs may be higher or lower than these average estimates.				
Physical Activity Level[b]				
Gender	**Age (years)**	**Sedentary**	**Moderately Active**	**Active**
Child (female and male)	2–3	1,000–1,200[c]	1,000–1,400[c]	1,000–1,400[c]
Female[d]	4–8	1,200–1,400	1,400–1,600	1,400–1,800
	9–13	1,400–1,600	1,600–2,000	1,800–2,200
	14–18	1,800	2,000	2,400
	19–30	1,800–2,000	2,000–2,200	2,400
	31–50	1,800	2,000	2,200
	51+	1,600	1,800	2,000–2,200
Male	4–8	1,200–1,400	1,400–1,600	1,600–2,000
	9–13	1,600–2,000	1,800–2,200	2,000–2,600
	14–18	2,000–2,400	2,400–2,800	2,800–3,200
	19–30	2,400–2,600	2,600–2,800	3,000
	31–50	2,200–2,400	2,400–2,600	2,800–3,000
	51+	2,000–2,200	2,200–2,400	2,400–2,800

a. Based on Estimated Energy Requirements (EER) equations, using reference heights (average) and reference weights (healthy) for each age/gender group. For children and adolescents, reference height and weight vary. For adults, the reference man is 5 feet 10 inches tall and weighs 154 pounds. The reference woman is 5 feet 4 inches tall and weighs 126 pounds. EER equations are from the Institute of Medicine. Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids. Washington (DC): The National Academies Press; 2002. b. Sedentary means a lifestyle that includes only the light physical activity associated with typical day-to-day life. Moderately active means a lifestyle that includes physical activity equivalent to walking about 1.5 to 3 miles per day at 3 to 4 miles per hour, in addition to the light physical activity associated with typical day-to-day life. Active means a lifestyle that includes physical activity equivalent to walking more than 3 miles per day at 3 to 4 miles per hour, in addition to the light physical activity associated with typical day-to-day life. c. The calorie ranges shown are to accommodate needs of different ages within the group. For children and adolescents, more calories are needed at older ages. For adults, fewer calories are needed at older ages. d. Estimates for females do not include women who are pregnant or breastfeeding.				

From: Chapter 2: Balancing Calories to Manage Weight. 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, December 2010.

From the current recommendations, these requirements will help maintain your body weight. However, for those who are overweight or obese, daily calorie intake of solid fats and added sugars should be decreased in order to reach your ideal body weight.[3] There is no set rule as to how many calories are needed to be removed from your daily intake. However, if you want to lose 1 to 2 pounds a week, you will need to burn 500 to 1000 calories more than you consume each day through a lower calorie diet and exercise regimen.[4] It is also important to review how much of each macronutrient (i.e. protein, carbohydrates, and fats) is consumed. The amount of calories consumed not only comes from fats and sugars but it comes from macronutrients such as carbohydrates and proteins. For children ages 1-17 and adults age 18 and over, the recommended percentage of carbohydrates that should be consumed is 45-65%, whereas the amount of proteins varies with age. For young children (1-3 years), the percentage should be 5-20%, in older children and adolescents (4-18 years), it is 10-30%, and adults 19 years and above should be 10-35%. For the amount of fat in the diet, the number averages around 30% between each of the three age groups.[3]

Some experts feel that the best dietary approach to help reach your ideal body weight would be to consume meals that contain a large portion of carbohydrates and proteins and a reduced portion of fat.

According to the Dietary Guidelines for Americans 2010, the following is a list of key recommendations:

- Eat plenty of fruits and vegetable

- When it comes to vegetables, go for the dark green, red, and orange vegetables, beans, and peas

- Increase your intake of whole grains (versus refined grains) to at least half of all grains consumed
    - o The reason why this is suggested because refined grain has a lower percentage of vitamins and fiber and thus the remaining substance in refined grain is solid fat
    - o The recommended intake of grains is 3- ounces daily of grains

- Try to replace whole milk with fat-free or low-fat milk and milk products (i.e. milk, yogurt, cheese, or fortified soy beverages)

- Add protein from healthy foods such as seafood, lean meat (where the majority of solid fat has been removed) and poultry, eggs, beans and peas, soy products, and unsalted nuts and seeds
    - o When it comes to poultry, make sure that it is baked and skinless

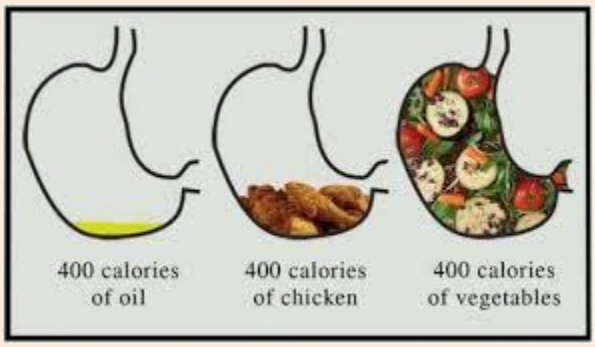
- Try to increase the amount of seafood (and even replacing poultry with seafood)
    - o Even though there are many benefits to eating seafood, especially among pregnant women and growing children, it is important to eat seafood and shellfish that is low in mercury to prevent adverse health effects according to the FDA and Environmental Protection Agency. Examples of seafood and shellfish with low levels of mercury include: salmon, shrimp, canned light tuna, Pollock and catfish. Seafood that has higher levels of mercury are shark, swordfish, King Mackerel, and tilefish from the Gulf of Mexico [5,6]

- When it comes to protein intake, try to replace foods that have a higher percentage of solid fats with those that are lower in solid fats

- Replace solid fats with unsaturated fats (i.e. oils, nuts, fish) as often as possible

- Nutrition-wise, it is recommended to consume foods with more potassium, dietary fiber, calcium, and Vitamin D. These nutrients are usually low in the typical American diet. The food examples listed previously would include these nutrients

Note: These nutrients are targeted towards people who do not have a history of kidney or endocrine problems. Percentages of nutrients are subject to variation due to certain medical conditions. Additional nutrients such as folic acid and iron are especially targeted to pregnant and breast-feeding women. Talk to your primary care physician for more information in regards to renal and diabetic diet plans.



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Empty Calories[3]
How do I count the empty calories I eat?

Below are some tables that can help you remove "empty calories" from your diet and making the right choices in your foods and beverages for you, your family, and your patients.

It is very easy to exceed your empty calorie allowance, even when making careful food choices. Fats are concentrated sources of calories. Even small amounts of foods high in solid fats will use up the empty calorie allowance quickly.[2]

Table 2 provides a guide on daily calorie needs and empty calorie allowance based on age and gender.

Table 2: Estimated Daily Calorie Needs and Empty Calorie Limits[2]

Age and Gender	Estimated calories for those who are not physically active	
	Total daily calorie needs*	Daily limit for empty calories
Children 2-3 yrs	1000 cals	135**
Children 4-8 yrs	1200-1400 cals	120
Girls 9-13 yrs	1600 cals	120
Boys 9-13 yrs	1800 cals	160

Girls 14-18 yrs	1800 cals	160
Boys 14-18 yrs	2200 cals	265
Females 19-30 yrs	2000 cals	260
Males 19-30 yrs	2400 cals	330
Females 31-50 yrs	1800 cals	160
Males 31-50 yrs	2200 cals	265
Females 51+ yrs	1600 cals	120
Males 51+ yrs	2000 cals	260

* These amounts are appropriate for individuals who get less than 30 minutes of moderate physical activity most days. Those who are more active need more total calories, and have a higher limit for empty calories. To find your personal total calorie needs and empty calories limit, enter your information into "My Daily Food Plan."
** The limit for empty calories is higher for children 2 and 3 years old than it is for some older children, because younger children have lower nutrient needs and smaller recommended intakes from the basic food groups.

Tables 3-8 provide quick guides to the number of empty calories in some common foods.

Table 3: Estimated Empty Calories From Sampled Dairy Products

Food	Amount	Estimated Total Calories	Estimated Empty Calories
DAIRY GROUP			
Fat Free Milk (Skim)	1 cup	83	0
1% milk (Low fat)	1 cup	102	18
2% milk (Reduced fat)	1 cup	122	37
Whole Milk	1 cup	149	63
Low-fat chocolate milk	1 cup	158	64
Cheddar cheese	1 ½ oz	172	113

Nonfat mozzarella cheese	1 ½ oz	59	0
Whole milk mozzarella cheese	1 ½ oz	128	76
Fruit flavored low-fat yogurt	1 cup (8 fl oz.)	250	152
Frozen yogurt	1 cup	224	119
Ice cream, vanilla	1 cup	275	210
Cheese sauce	¼ cup	120	64

From: Empty calories: How do I count the empty calories I eat? Calories: ChooseMyPlate.gov. Updated 4 June 2011. United States Department of Agriculture. Retrieved 6 October 2014 <http://www.choosemyplate.gov/food-groups/emptycalories_count_table.html>

Table 4: Estimated Calories From Sampled Protein Foods Group

Food	Amount	Estimated Total Calories	Estimated Empty Calories
PROTEIN FOODS GROUP			
Extra lean ground beef, 95% lean	3 oz., cooked	146	0
Regular ground beef, 80% lean	3 oz., cooked	229	64
Turkey roll, light meat	3 slices (1 oz. each)	165	0
Roasted chicken breast (skinless)	3 oz., cooked	138	0
Roasted chicken thigh with skin	3 oz., cooked	209	47
Fried chicken with skin & batter	3 medium wings	478	382

Beef sausage, pre-cooked	3 oz., cooked	345	172
Pork sausage	2 patties (2 oz.)	204	96
Beef bologna	3 slices (1 oz. each)	261	150

From: Empty calories: How do I count the empty calories I eat? Calories: ChooseMyPlate.gov. Updated 4 June 2011. United States Department of Agriculture. Retrieved 6 October 2014 <http://www.choosemyplate.gov/food-groups/emptycalories_count_table.html>

Table 5: Estimated Calories From Sampled Grains Group

Food	Amount	Estimated Total Calories	Estimated Empty Calories
GRAINS GROUP			
Whole wheat bread	1 slice (1 oz.)	69	0
White bread	1 slice (1 oz.)	69	0
English muffin	1 muffin	132	0
Blueberry muffin	1 small muffin (2 oz.)	259	69
Croissant	1 medium (2 oz.)	231	111
Biscuit, plain	1 medium (2.5” diameter)	186	71
Cornbread	1 piece (2 ½” x 2 ½” x 1 ¼”)	167	52
Corn flakes cereal	1 cup	90	8
Frosted corn flakes cereal	1 cup	147	56
Graham crackers	2 large pieces	118	54
Whole wheat crackers	5 crackers	85	25
Round snack crackers	7 crackers	106	42
Chocolate chip cookies	2 large cookies	161	109

Chocolate cake	1 slice of two-layer cake	408	315
Glazed doughnut, yeast type	1 medium, 3 ¾" diameter	255	170
Cinnamon sweet roll	1 medium roll	223	137

From: Empty calories: How do I count the empty calories I eat? Calories: ChooseMyPlate.gov. Updated 4 June 2011. United States Department of Agriculture. Retrieved 6 October 2014 <http://www.choosemyplate.gov/food-groups/emptycalories_count_table.html>

Table 6: Estimated Empty Calories From Sampled Vegetable Group

Food	Amount	Estimated Total Calories	Estimated Empty Calories
VEGETABLE GROUP			
Baked potato	1 medium	159	0
French fries	1 medium order	431	185
Onion rings	1 order (8-9 rings)	275	160

From: Empty calories: How do I count the empty calories I eat? Calories: ChooseMyPlate.gov. Updated 4 June 2011. United States Department of Agriculture. Retrieved 6 October 2014 <http://www.choosemyplate.gov/food-groups/emptycalories_count_table.html>

Table 7: Estimated Empty Calories From Sampled Fruit Group

Food	Amount	Estimated Total Calories	Estimated Empty Calories
FRUIT GROUP			
Unsweetened applesauce	1 cup	105	0
Sweetened applesauce	1 cup	173	68

From: Empty calories: How do I count the empty calories I eat? Calories: ChooseMyPlate.gov. Updated 4 June 2011. United States Department of Agriculture. Retrieved 6 October 2014 <http://www.choosemyplate.gov/food-groups/emptycalories_count_table.html>

Table 8: Estimated Calories From Other Sampled Food Products

Food	Amount	Estimated Total Calories	Estimated Empty Calories
OTHER			
Pepperoni pizza	1 slice of a 14" pizza, regular crust	340	139
Regular Soda	1 can (12 fl oz.)	136	136
Regular Soda	1 bottle (19.9 fl oz.)	192	192
Fruit-flavored drink	1 cup	128	128

Butter	1 teaspoon	36	33
Stick margarine	1 teaspoon	36	32
Cream cheese	1 Tablespoon	41	36
Heavy (whipping) cream	1 Tablespoon	51	45
Frozen whipped topping (non-dairy)	¼ cup	60	55
Table wine	1 glass (5 fl oz.)	121	121*
Beer (regular)	1 can (12 fl oz.)	155	155*
Beer (light)	1 can (12 fl oz.)	104	104*
Distilled spirits (80 proof)	1 standard drink (1 ½ fl oz.)	96	96*

* Calories from alcohol are not from solid fats or added sugars, but they count against your limit for empty calories — calories from solid fats and added sugars. The calories per serving are listed on the Nutrition Facts label on food packages. Be sure to compare the stated serving size to the amount actually eaten. If you eat twice the stated serving size, you will have twice the calories.

From: Empty calories: How do I count the empty calories I eat? Calories: ChooseMyPlate.gov. Updated 4 June 2011. United States Department of Agriculture. Retrieved 6 October 2014 <http://www.choosemyplate.gov/food-groups/emptycalories_count_table.html>

Where Do I Go From Here?

Now that you have the necessary knowledge about calories, you can apply this to your decisions about food choices. Calories are not fully to blame for excess weight. Energy from food is essential to our well-being. However, less healthy food choices along with decreased physical activity have been partly responsible for the high prevalence of overweight and obesity in the world. Another reason people with excess weight may eat too much because they have dysfunctional regulation of satiety and appetite. Along with increase in physical activity and exercise, eating foods containing complex carbohydrates, proteins, and minimal solid fats and added sugars will ensure a healthy diet with the nutrients that your body needs.

If you are interested in losing weight, creating a calorie deficit by reducing the number of calories consumed daily from solid fats and added sugars may help with weight loss. This should be in conjunction with weekly exercise and daily physical activity, which will be covered in more detail in the following chapters. It is important to not restrict calories too much because this may deprive your body of the essential energy it needs to function.

One way to guarantee effective health maintenance and even weight loss is to count calories and read the labels on the foods and beverages you purchase. There are many resources available to help with this and some are provided below. Besides the Internet and apps for mobile devices, there are even some grocery stores that have an in-store dietitian to help you review labels and make healthier choices.

If counting calories is not for you, that is OK. By changing your diet to include healthier options (i.e. switching from white bread to whole wheat bread), this may improve your overall health and help you reach your ideal body weight.

Websites to Access Information on Calories

For direct information regarding FDA approved Nutrition Facts Labels, try http://www.fda.gov/Food/IngredientsPackagingLabeling/LabelingNutrition/ucm20026097.htm. Easy tool for making quick, informed food choices that contribute to a healthy diet! This resource offers a variety of ways to understanding and utilize the Nutrition Facts Label.

For comprehensive information on daily food plans, healthy eating on a budget, weight management options, recipes, and importance of physical activity, try USDA's website http://www.choosemyplate.gov. With additional features, such as Ask The Expert, Top 10 Tips for healthy eating, and Food Safety information.

Great Apps to try for both Android and iOS Devices

Calorie Counter and Diet Tracker by MyFitnessPal. Massive database of nearly 4 million foods. Fantastic tracking and analytic app for do-it-yourself weight loss. My Fitness Pal lets you log activity and food intake while syncing up with activity trackers and fitness gadgets like Fitbit, Jawbone UP and Runtastic. The app also offers more than 350 cardio and strength training exercises to help you trim down and tone up. Cost: Free. Platform: iOS, Android and Windows

Fooducate. Allows you to scan package barcodes at the supermarket with your phone's camera for a nutrition grade (A, B+, etc) based on a system designed by dietitians, scientists and parents. The app also suggests healthier alternatives, if available. Cost: The basic app is free; the "plus" version costs $3.99. Platform: iOS and Android

Lose It! Weight Loss Program and Calorie Counter. Simplifies weight loss by designing a custom plan for you, then tracking your calories and exercise to help you get there. Tips on other goals, such as sleeping better, trimming body fat, or eating a more nutritious diet

are included. Plus, it features groups and one-on-one connect features help you get support from friends and fellow dieters in the program. Cost: Free. Platform: iOS and Android

Meal Snap - Calorie Counting Magic. Snap a quick pic of your plate, then gives you a rough estimate of the caloric content! Cost: $2.99. Platform: iOS

Please note: AMWA does not endorse dietary content any of these applications. These apps have not been evaluated for medical accuracy Healthline Networks and unless otherwise indicated, have not been approved by the U.S. Food and Drug Administration (FDA).

CHAPTER SUMMARY

The Calorie, or kilocalorie, used in nutrition is defined as the unit of energy needed to heat and metabolize foods. Scientifically, there has been discussion on replacing the term kilocalorie with kilojoule; however, the term calorie continues to be used in society. Calories in general are not bad for you, but the ones that derive from solid fats and added sugars are not nutritious and may actually increase your risk of health problems such as diabetes and cardiovascular disease. This is why these calories are called empty calories. Examples of foods and beverages that contain a high number of empty calories include cakes, sodas, fruit drinks, cheese, pizza, ice cream, sausages, and alcohol. Foods and beverages contain varying amounts of empty calories, however it is up to you to compare foods and beverages to find those that contain the lesser number of empty calories in order to maintain or lose weight. In order to determine the appropriate amount of calories, you will need to know your age, gender, height, weight, and level of physical activity. These determinants will cause variation in estimated daily calories needs. For each age range, there is also an estimated amount for macronutrient (i.e. proteins, carbohydrates, and fats) requirements. Some recommendations for achieving an ideal body weight are: to eat meals that contain more complex carbohydrates and proteins than fats, consume fewer calories than expended, count the amount of calories you consume daily based on the determinants previously provided, and/or replace foods and beverages with those with smaller amounts of empty calories. Resources, websites, and mobile apps about calories have been listed for your convenience.

Notes

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CHAPTER FIVE

Shake it Baby: Physical Activities That Can Jumpstart Your Health

By Heather Foreman, MD, Marissa Orenstein, MD, and Dana Bonaminio, MD

One of the commonly cited downsides of medicine (or motherhood for that matter – not to mention those of you who may fall into both categories), is that we spend our time caring for others and leave ourselves with minimal time to care for ourselves. That is one of the reasons I believe that group training whether it is in person or virtually is so important for us. It is easy to get caught up in our daily lives and feel that we do not have time for our own physical fitness. So would it benefit us to make it more than about “just us” but a group accountability? Ensuring that our friends become healthier too? Ensuring that we are practicing what we preach? Even using this as time to catch up with friends?

A recent article published in Diabetes, Metabolic Syndromes and Obesity highlights the propensity of Community Exercise to convert Metabolically Abnormal Obese to Metabolically Healthy Obese (MHO is defined as preserved insulin sensitivity, normal blood pressure, and an absence of dyslipidemia, despite excess body fat) [1]. They also note the prevalence of 11% of non-obese people to be metabolically abnormal and the ability of exercise to convert these individuals as well to metabolically healthy. This is the ultimate goal, to become happier and healthier, to have normal metabolism, and therefore more able to accomplish our goals.

Moreover, a recently published study looking at breast cancer survivors shows that peer involvement can help to increase physical activity [2]. Now, most of us are not battling breast cancer (luckily!), but we are dealing with plenty of life stressors, patients battling diseases, and perhaps our own personal and family struggles. AMWA hopes to provide some of the peer involvement you need to improve your physical activity.

If this was not important enough, it transitions to our ability to serve our patients. "We conclude that physicians and medical students who had a normal BMI and met vigorous USDHHS guidelines were more likely to feel confident about counseling their patients about physical activity [3]." This study highlights the importance of bettering yourself in an effort to better others.

The most important part of maintaining a good BMI is diet, but physical activity is necessary to maintain good muscle tone and cardiovascular health. Being physically active has numerous important health benefits, including elevated mood, improved sleep, and improved immune system. It also boosts self-esteem and helps us to feel involved passionately in something other than our careers. It also serves as a way to make connections between patients and with others in our lives.

Breaking up physical activity into groups is helpful to determine which would be best for you. It is an individualized choice, and will also depend on personal preference, schedules and even weather. Importantly, all women should seriously consider weight bearing activity, as this is truly the best for building overall muscle tone, for bone health, and more muscle will burn more fat and increase your metabolic rate at rest, so more muscle means more calories burned while we are busy with our careers.

To be technical, research has shown that health benefits are obtained with the following:

-2.5 hours of moderate-intensity aerobic physical activity per week, or

-1 hour and 5 minutes of vigorous intensity aerobic physical activity per week or

-A combination of moderate and vigorous-intensity aerobic physical activity and muscle-strengthening activities on 2 or more days per week.

This seems very technical, so let's break it down into groups:

www.everydayhealth.com

Muscle Strengthening Activities

Muscle is beautiful and a girl has to move those muscles. Move over skinny, as strong is the new sexy! Strength training can be intimidating as most women are worried about 'bulking up.' If this applies to you, remember that women do not have nearly the levels of testosterone as men that cause them to become bulky. It can also be intimidating as women often don't know where to start. If this is you, most gyms offer personal trainers which you can utilize for a few sessions and then take off on your own. You can also work on muscle tone with just your own body weight, and could do strength-training activates at home with videos you can download from YouTube. A resistance band and kettle bell in your home can take you very far. If you find working out in groups more effective, look for a local boot camp classes or even CrossFit, which is very high-intensity workouts but have the added benefit of being very short in duration, which is great for the busy resident or attending physician. Remember, when starting a weight training program, it is normal at first to gain a few pounds, which can be discouraging. However, with a new program affecting your body, weight gain can come from water retention and an increase in both muscle and bone mass. Remember to throw away the scale and use your tape measure to record your inches lost, as this is a better tracker of progress than numbers on a scale.

Ask yourself the following questions when considering which would be best for you:

-Are you limited on time? Try short-duration and high intensity workouts (cross fit, boot camp, z-gym classes online)

-Are you limited on cash? Buy a resistance band and some weights and use the internet for class in the comfort of your own home.

-Are you new to muscle and resistance training? Try hiring a personal trainer to help you for a few sessions and then create your own from the information gained from them.

-Are you more motivated in groups? Try toning classes at your local gym or join a CrossFit club near you.

Remember, whichever program you choose, muscle strengthening has more long lasting and sustainable results than all other forms of physical activity, so choose wisely!

www.fitneass.com

Cardiovascular activity

Cardiovascular exercise is great to burn calories, reduce stress, improve recovery time, and can be used to carve out a moment of alone time during a busy day. Cardiovascular activity is also an important balance to resistance training and is thought to have benefits including slowed aging and improved immunity; however, more research is needed to determine if these potential benefits are real. Most people think of running as cardiovascular activity, which is great if you love to run. If not, there are a lot of other exercises that are cardiovascular and include the following:

-Running/walking

-Swimming/pool aerobics

-Biking/spinning class

-Dancing/Zumba

-Local step classes/aerobic classes

-Cross-training such as the elliptical, stationary bike, circuit training

-Group sports such as softball, golf, kickball

-Even replacing elevators/escalators with going up and down stairs at work.

Running is not for everyone, and you are more apt to stick with something that you enjoy doing. You are even more apt to stick with something if you join a local group or club. Most cities have several running clubs you could choose from based on time and location, and are motivating and places to make new friendships. Most clubs are open to all levels, so if you are new, it may be inspiring and a welcomed change.

Planning a race is a great way to keep up with your goals, stay motivated and have fun! There are different race courses and lengths, and is a good way to stay challenged. If you have mastered a 5K or half-marathon, why not go for a full marathon, if that is within reach? Training for a race during a busy year actually helps most people better prioritize their time, stay on their diets, and prove to have higher overall satisfaction rates, so do not use a busy schedule as an excuse! If you ran a race, why not try a triathlon? This allows you to graze in several types of cardiovascular exercise and keeps your muscles guessing. This is the same reason it is good to mix up the type of cardiovascular exercise that you engage in, as you will start to burn less and gain less muscle with repetitive moments.

If you feel you would be better in a group setting, most gyms will offer different types of cardiovascular group exercises such as step classes, aerobics, Zumba, or spinning classes. Try one or try them all.

Ask yourself the following questions when choosing cardiovascular exercise:

-Do you do better when setting goals in advance? Sign up for a local race, such as a 5K, biathlon, or triathlon.

-Do you do better in groups? Try some local aerobics/step/dance classes

-Are you an outdoor lover? Try joining a local running, biking, or hiking club.

www.realityofyou.com

Stretching

Stretching is a crucial intermediate when participating in any type of physical activity. Stretching promotes not only flexibility, but increases muscle strength and tone and is key in preventing injuries. Remember to stretch both before and after exercise. Yoga is great from of stretching, and some classes can double for resistant training.

There are many kinds of yoga, from gentle hatha yoga to the more vagarious Vinyasa yoga and finally to “hot yoga” aka Bikram yoga. Yoga has a host of benefits, including restorative sleep, improved flexibility, a focus on “looking inwards,” and many more. Try adding some yoga to your routine, or if you find it is your passion, continue yoga daily.

Pilates is another alternative that can be similar to yoga in its more restorative nature, but also focus on strength training. In addition to being a very enjoyable form of exercise, pilates can serve to help with balance, muscle strength and flexibility. Some individuals find pain relief when they are able to strengthen their core!

Other forms similar to yoga exist in fusion classes, such as yoga and spinning, or ballet classes, where there is an emphasis on small fine movements.

Great Apps to try for both Android and iOS Devices[4, 5]

Nike+Training Club. A training program specifically created for women. It is like having a personal trainer in your pocket - anytime and anywhere! You can select individual workouts or long-term programs to get toned and fit. This app boasts 100 full body workouts with master trainers and monthly workouts led by professional athletes. Choose beginner, intermediate, or advanced workout levels! Choose goals like get lean, get toned, get strong or get focused! Cost: Free. Platform: iOS and Android

Fitocracy. Turn workouts into a competition! The app allows you to earn points, beat quests, and unlock different achievements. You are able to track your exercise either as you do them at the gym or once you're done. It encourages discipline and consistency with a variety of premade workouts. Perfect combination of tracking your regular workouts as well as learning new ones! Cost: Free. Platform: iOS

RunKeeper Think running, hiking, and fitness walking with your very own with audio coaching! You will need the GPS on your smartphone to track your progress with planned or create-your-own routes. Sync it with other tracking apps like MyFitnessPal's Calorie Counter and Fitbit. Cost: Free. Platform: iOS and Android

Fitbit Dashboard type of set up - can be used on its own or with the company's smart wristbands to track your activity and training! Improve your health and stay motivated. Remember that the wristband counts exact steps and calories burned, but without it, you can still log workouts and your food intake! Free. Platform: iOS and Android

***Please note*: AMWA does not endorse fitness content of any of these applications. These apps have not been evaluated for medical accuracy and unless otherwise indicated, have not been approved by the U.S. Food and Drug Administration (FDA).**

CHAPTER SUMMARY

Remember, it is important to tailor your exercise regimen to your schedule, your personal goals, and your overall health goals. Taking even just twenty minutes per day (up to one hour a day) to sweat and increase your metabolic rate and build strong muscles and bones is important in taking care of yourself, something that must be done in order to take care of others. A good physician should practice what they preach!

Mix up your exercise regimen to keep from getting bored and to continually use new muscles and test your limits. Don't be afraid to weight train, as women do not get bulky! Put away your excuses, be proud of what your strong body can do, and I bet you will never finish a workout that you were not happy you completed. Some resources on fitness apps have been provided for your convenience.

Notes

ephtracking.cdc.gov

CHAPTER SIX

Strategies for Behavior Modifications: Tips from the Residents

By Heather Leisy, MD, Marissa Orenstein, MD, and Vanessa al Rashida, MD

Where to start in changing your behavior during such a busy time in your life??? Start simple...Get out and walk!

Pedometers are so accessible and easy in today's world. You may have heard of Fitbit, an electronic armband pedometer that not only counts the number of steps but can also display distance traveled, quantify altitude changes, calculate calories burned, and keep track of daily fitness goals. According to the JAMA article of "Using Pedometers to Increase Physical Activity and Improve Health", the use of pedometers increased physical activity by 2491 steps per day over the control (nonuser) group. Additionally, the body mass index of pedometer users significantly decreased by 0.38 compared to the control. The important predictor of this activity was a 10,000 step per day goal which is the standardized goal built into the Fitbit. Now GET OUT and become active...there is no excuse with top designers like Tory Burch incorporating it into fashionable jewelry!

Keep up the fitness by getting engaged in a group:

1. Apps that connect with other individuals [1]– ex. Nike + training, fitbit, etc allow you to engage in a friendly competition/ become accountability partners with one of your peers. Use those pedometers we previously discussed to push yourself to higher limits.

    a. SMART MOVE STUDY “Notwithstanding technological challenges, an app has the potential to positively transform, in a unique way, participants' relationships with exercise. Such interventions can also have an associated cascade effect within their wider families and communities.”

2. Challenge yourself! Commit to the AMWA challenge and track your training, this can lead to a much healthier you, but is all the better to have a reward attached. Did you know that AMWA is offering a cash prize to the winner of our challenge??

3. Check out what fitness classes are offered by your program (or a local gym) and make fun dates with your friends! Alternatively, you can consider doing an at home workout such as T25 which allows you to get a wide variety of high intensity training in only 25 minutes.

4. Eat real food! It is all too easy to eat the pre-prepared frozen foods or eat at the cafeteria. Added sugar is everywhere and contributing to one of the greatest public health debates ongoing in this century.

Physicians are not above sugar, but need to be health conscious and liable which means to cook and eat real food.

Last but not least, if working out in groups honestly is not how you want to get fit, that's perfectly fine. One of the best ways to lose weight on your own is to keep a record of the amount of calories you consume and the amount of exercise done. This record-keeping can be done either electronically or in a diary.

There is no one exercise and fitness regimen that will guarantee the most amount of weight lost. They all help with losing weight. It is up to you to choose what is best for your lifestyle. What do you have to lose, except for weight that is? Go for it!!!

CHAPTER SUMMARY

There are many nutrition and fitness regimens. All it takes is the motivation and drive to reach your goals. We are all busy in our lives, but forgetting to take care of ourselves only hinders our ability to care for others. Some of the ways to help modify your health are by the use of pedometers in measuring your distance and calories burned; participate in group workouts such as spinning and boot camp sessions; eat food that is fresh and not pre-packaged; and keep a record of the number of calories consumed and how much you exercise. All of these will help better your health.

Notes

www.provectushealth.com

CHAPTER SEVEN

YOU ARE MORE THAN YOUR WHITE COAT: You are the CEO of Your Personal Life

By Leah Dickstein, MD, MS

You deserve the best of your precious gift of life.

"Life is not measured by the number of breaths we take, but by the moments that take our breath away" Hilary Cooper

Thus, choose from the following thoughts and recommendations to enable you to envision, prioritize and act on choices to achieve and maintain a mentally and physically healthy, happy, honest, humane day-to-month-to-year-to decades of your life ahead.

TAKE THE FIRST STEP

Bring the facts, ingenuity, creativity directly to your personal lifelong health improvements and maintenance program.

What's the risk to first decide it's correct to make and take time for healthy self-care forever, from deep breathing, exercise and meditations de-stressors, to a permanent creative art area where you live, to correct shopping, regular primary care and other physician health check-ups as indicated, laughing out-loud for several minutes daily, enough good sleep, respectful loving relationships, first with yourself. Courageous people seek correct treatments as needed.

Raise your fitness level by mindful eating: one nutritious choice and one physical step at a time, wherever you are. If and when you need more, search, ask, ask, e.g. how about a saucer as a dinner plate, a 2 cup glass measuring cup for easy, best visible amounts of breakfast, lunch, snacks.

An idea to help implement fitness and time for yourself would be to create charts with the following labels:

1. Five Minute Breaks
2. Exercises
3. Socializing
4. Creative Activities

Components of a healthy contented peaceful life depend first on AWARENESS of your personal holistic view and approach to your whole integrated body and soul, what your life is, can be about, before medical, political, economic, social, cultural, gender justice, though life events do intrude.

Ongoing good-to-best self-care is like ongoing deep breathing, honest careful thinking and living.

First, you are a person, both universal and unique.

Nothing is unbelievable, no one is perfect. If you err, slip, apologize to self, others, move on. You've come a long way in your life, with past accomplishments, you already have successful unique rules and supports.

To clearly see your rules and supports, make charts with the following labels:

1. Successful Rules
2. Supports
3. Coping Techniques

WHAT'S the RISK to decide first that it's wise to make and take TIME for improving your health by making time for good food shopping, preparing, eating, enjoying.

Why not live an honest, respectful humane, ethical, responsible PERSONAL and professional life? Literally, reinvent your life, walk the talk we give patients.

Life events certainly intrude, both expected and unexpected; our current lives are NOT a dress rehearsal; we live only ONCE.

TIPS ON MAINTAINING A HEALTHY MIND, BODY, AND SPIRIT

Another part of good health, beyond nutrition and fitness, is time for first-hand creativity. ASK YOURSELF: "What do I do, what would I wish I could do, that's creative?" If you already really participate in a creative art, that's fine, but you also might like to try another, why not? WHAT'S THE RISK?

Try a Haiku - 3 line poem: The first line consists of 5 syllables, the second time usually has 7 syllables, and the third line had 5 syllables. It is not necessary for haikus to rhyme.

An an example, please read the poem "The Question" below written by one of my former medical students required for his participation in my maximum 6 week elective, "Physicians and the Arts" University of Louisville 1983-2002.

THE QUESTION

by Michael W. Steger - Class of 1998

I woke one morning only to find that my life was passing me by…

I had spent so much time

Working for a future, mine,

That I was not living my life.

The weary pace of my days past had replaced the joy in my heart..

I had spent too much time

Working for a future, mine,

That my daily routine was a chore.

What I began to realize the more I thought was this…

I had spent too much time

Working for a future, mine,

That the life I had lived was missed.

So now I live each day as if it were a treasure…

I now make the time,

For living this life, mine,

So that each day is a gift, a treasure.

So now I ask this question, in introspective cry…

Do you now make the time

For living this life, thine,

Or do you instead let life pass you by?

BE THE BEST CEO OF YOU

You must definitely be the CEO of your personal and professional life now and forever, i.e., your long-term commitment to YOU.

Be aware of yourself each day, from awakening, and as the minutes and hours arrive and leave. You may see areas to improve. Why not insert, do, attempt to do better for yourself, as you do for others, sooner than later. Be aware of the successes and/or further training of your efforts.

Making step-wise changes in attitudes and actions does not have to interfere in your professional responsibilities, in fact, they can improve completion of assignments as you also literally are aware you feel better, stronger, think more clearly and quickly, feel deservedly more successful, and may also be recognized by others for the same reasons.

Take 5 minute breaks to stretch, deep breathe, drink water, laugh aloud, use facilities.

Self-caring well, as your first priority, can enable you to care well for others.

Diet and exercise alone won't make you a healthy person.

Think and behave to earn your self-respect.

Treat every day as the gift it is.

Read biographies, obituaries, especially in The New York Times: you'll "meet" extraordinary people.

KEEP a PERSONAL THOUGHTS BOOK of your life journey in words, phrases, sentences.

For example:

1. Eleanor Roosevelt said, "No one can make you feel inferior without your consent."

2. "The future belongs to those who believe in the beauty of their dreams." Then risk taking the steps to realize yours.

3. Winston Churchill said, "Perseverance is valuable; Creativity is the ability to move from 1 failure to another with no loss of enthusiasm."

4. "FIND YOUR INNER VOICE to know yourself" was the ancient Greeks greatest goal. It included self-understanding, self-realization, self-acceptance, self-honor, self-love, if deserved.

5. "Know and support your own ethical values, trust your true self" Gandhi's words.

6. Gloria Steinem's 1992 classic, A BOOK OF SELF-ESTEEM, Revolution From Within, is well worth your time.

7. Aristotle's words are on target, "Life is really simple, but we insist on making it complicated."

LOOK WITHIN TO BRING YOUR BEST SELF OUT

Be aware of where the current is taking you and decide if to continue or not. Rethink yourself often, be real. Life is about RESPECT #1, moments, memories, opportunities, decisions, fears, courage, hard work, luck, determination, LOVE.

In significant relationships listen, be patient, honest, respectful, learn from each other, challenge your thoughts and actions.

YOU CAN LIVE YOUR BEST LIFE, WHAT'S THE RISK? Honesty, humility, humanity, health, happiness? Are you at a crossroads now?

The ancient Greek philosopher ZENO of CITIUM said, "We have two ears and one mouth, so we should listen more than we say" WHAT'S THE RISK?

Think outside the box, WHAT'S THE RISK to change, be different? Care enough about yourself to embrace change. Accept all sizes, steps of change, modify as you will, can. YES, YOU CAN.

MEDITATIONS FOR MYSELF FOR ANY TIME AND PLACE

The Third Simon Affinity Group Lecture, January 27, 1997

Brown University School of Medicine

Leah J. Dickstein, M.D., M.S., Lecturer

Modified from the Woman's Book of Courage :

Meditations from Empowerment and Peace of Mind

Sue Patton Thaele, Conari Press, Berkeley, CA 1991

I have the courage to:

1. Believe in myself and be uniquely myself
2. Acknowledge my feelings and work through them constructively
3. Allow myself to express my pains constructively at the right time and place
4. Make my mind my friend
5. Create peaceful thoughts in stressful situations
6. Be disciplined to live a balanced life and set limits
7. Take risks even when I am afraid
8. Ask for help and emotional support
9. Solve problems one by one with creativity, resourcefulness, careful thought and intelligence
10. Listen to others with the right to set limits
11. Teach others to treat me well
12. Be nice to myself and others
13. Think before voicing my opinions respectfully and firmly and to stand up for myself
14. I appreciate each priceless day I have
15. I am my own best and most important friend
16. I balance my life by taking care of my physical, emotional, mental and spiritual needs
17. I am aware of my limits and honor them
18. I pay attention to what I know is right for me

What are you waiting for? Begin now, the BEST OF LUCK, YOUR EFFORTS WILL BRING YOU THE UNIQUE SUCCESSES YOU WANT.

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Notes

More Benefits from AMWA

The AMWA Preventive Services App

Description:

The AMWA Preventive Services application provides users a quick and simple way to find community health centers in their area and connects users to valuable health information. AMWA Preventive Services uses information from trusted sites such as surgeongeneral.gov and healthfinder.gov to provide you with the most up-to-date, evidence-based information.

The American Medical Women's Association (AMWA), founded in 1915, is comprised of physicians, residents, medical students, and health care professionals dedicated to advancing women in medicine and improving women's health.

AMWA's Preventive Medicine Task Force, founded in 2013 created this application to improve the flow of disease prevention and health information nationwide.

Features:
Health Center Locator
Find clinics close to you! The application uses your phone's GPS to locate the clinics closest to you based on a distance you choose. You can also enter a location of your choosing.

My Health Centers
Found a clinic you'd like to save for easy access? Save it to "My Health Centers" where you can easily re-access it at any time.

Health Information
Want to learn more about your health? Read about health topics such as diabetes, hypertension, heart disease and much more. Learn more about how you can stay healthy!

Look for the AMWA Preventive Services App in Google Play!

AMWA
Celebrating 100 Years
American Medical Women's Association
Empowering Women & Improving Health Care Since 1915