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# A Functional Algorithm for Weight Loss and Obesity Practice: Guide for Clinical Decision-Making for Treating Women

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A Functional Algorithm for Weight Loss and Obesity Practice: Guide for Clinical Decision-Making for Treating Women

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## ABSTRACT

### **Background**

Overweight and obesity have significant impact and consequences on women leading to reduced quality of life, comorbid conditions and premature mortality. Many healthcare providers lack adequate training and the time to properly treat overweight and obesity. Algorithms have been shown to improve clinical knowledge and save time.

### **Objectives**

To develop an algorithm for weight loss assessment and treatment to aid in the clinical decision-making process while improving the quality of care for overweight and obese clients in an efficient manner that can be replicated.

### **Methods**

After an extensive literature review to identify best-practice guidelines for weight loss a retrospective chart review was performed at two women's health clinics located in St. Louis County over a five-month period. For three consecutive appointments 50 patient charts were audited and compared to current evidence-based practice guidelines. Any gaps between the office practice and the guidelines were identified. A weight loss algorithm was then developed incorporating clinical assessment methods, lab work, anthropometric measurements and appropriate referrals.

### **Results**

Fifty patient's charts spanning from 10/2014-01/2017 were examined and compared to evidence-based clinical guidelines for weight loss. The comparison revealed gaps between evidence based research and practice related to lack of time, not wanting to add additional work for the staff/ healthcare providers, and forgetting to include various assessments and referrals. To improve the assessment practice while saving

valuable clinical time, an algorithm was recommended as a template to use in the electronic health records (EHR) along with a hard-copy paper form. Additional measurements were added to the women's health clinic computer system for neck and waist circumference by their IT staff, and a packet was developed containing assessment questionnaires for patients to either complete prior to coming to the initial appointment or fill out while in the waiting room. This weight loss algorithm was then presented to the participating clinician for implementation for a future pilot study.

## **Introduction**

The objective of this clinical scholarship project is to examine evidence-based algorithms for weight loss and obesity, compare them to current practice in a women's health clinic based near St. Louis, Missouri and to develop a functional/duplicable algorithm which would guide clinical decision-making to treat overweight and obesity in women. This algorithm will help standardize treatments for clinicians and encourage women to be the most successful at losing weight, thus decreasing the incidence of mortality and morbidity related to obesity. Properly and consistently treating overweight and obesity will help reduce cardiovascular disease, type 2 diabetes, certain cancers, osteoarthritis, infertility, as well as other medical conditions in this population (National Heart, Lung, and Blood Institute, 2012).

## **Background**

Obesity is now one of the most visible, but neglected public health problems globally. According to the World Health Organization (WHO, 2014), the prevalence of obesity globally has more than doubled between 1980 and 2014. Around the world, there are now over 1.9 billion overweight adults and of these 600 million are obese (WHO, 2014). The United States, a country that accounts for only 5% of the world's population, comprises 13% of those who are overweight and obese (Murray, Ng, & Mokdad, 2013). Approximately two thirds of American women are overweight or obese, while 9.9% are extremely obese (Centers for Disease Control and Prevention [CDC], 2015; Flegal, Kruszon-Moran, Carroll, Fryar, & Ogden, 2016). In the state of Missouri, just over 59% of women are overweight (CDC, 2014), while women residing in the city of St. Louis fall closely behind this statistic at 58.8% (Department of Health, City of St. Louis, 2015).

The increasing prevalence of obesity predicts rising financial burden from associated comorbidities, especially cardiovascular disease, diabetes and cancer (Wang, McPherson, Marsh, Gortmaker, & Brown, 2011). These trends are expected to continue in the United States, estimating 65 million more obese adults by 2030. Medical costs to treat obesity and its related diseases are expected to increase \$48-66 billion per year for this same period (Wang et al., 2011). Another study by Schmier, Jones and Halpern (2006), analyzed insurance claims data and discovered overweight and obese employees had consistently higher work-related costs, such as; sick leave, disability and workplace injuries.

Obesity leads to serious health consequences, including increased risk of premature death to comorbid conditions that reduce the general quality of life. Overweight and obesity directly and indirectly affects women. Cardiovascular disease is the number one obesity-related cause of mortality of women and one in four women will die from heart disease (Xu, Murphy, Kochanek, & Bastian, 2016). While coronary heart disease (CHD) is the number one killer for both men and women in the United States, coronary microvascular disease and broken heart syndrome (stress-induced cardiomyopathy) target more women (National Heart, Lung and Blood Institute, 2014). Nearly 64% (two-thirds) of women who die suddenly from CHD have no prior symptoms (American Heart Association, 2012).

Certain cancers such as ovarian, cervical and breast all have a higher incidence in overweight or obese women (Kulie et al., 2011). The duration of how long a woman has been overweight has been shown to impact the risk of developing these cancers, including endometrial (Arnold et al., 2016). Renehan, Tyson, Egger, Heller and Zwahlen (2008) go on to include an association between a higher body mass index (BMI) and gallbladder, esophageal adenomas and renal cancers in

overweight or obese women. A weaker link was noted in women for pancreatic, postmenopausal breast, thyroid and colon cancers, while leukemia, multiple myeloma and non-Hodgkin's lymphoma affect both men and women (Renehan, Tyson, Egger, Heller, & Zwahlen, 2008).

An overweight or obese woman is also more likely to develop metabolic syndrome, type 2 diabetes or have problems with infertility related to polycystic ovarian syndrome (PCOS) (Hu, 2003). Obesity contributes to various reproductive disorders such as anovulation, menstrual issues, infertility, miscarriage, difficulties with assisted reproduction and adverse pregnancy outcomes (Dag & Dilbaz, 2015; Jungheim, Travieso, & Hopeman, 2013). There is also an association with decreased intention, initiation and duration of breastfeeding in mothers who are obese (Kulie et al., 2011).

Overweight and obesity in pregnancy not only increases health risks for the woman, but also for her child. This is due to a higher incidence of preterm birth associated with this condition (Cnattingius et al., 2013; McDonald, Han, Mulla, & Beyene, 2010). Research also links obesity to an increase in preterm birth, to childhood and adult obesity, cardiovascular disease, and type 2 diabetes (Leddy, Power, & Schulkin, 2008). Nearly one in four (23.4%) women are obese prior to becoming pregnant (Osterman et al., 2013). A pregnant woman's preconception weight can influence the child's health (Beil, 2016; Patel, Pasupathy, & Poston, 2015). If she has a higher body mass index (BMI) prior to becoming pregnant it may be a determinant in her child's risk for cardiometabolic disorders later in adulthood, thus perpetuating the obesity cycle for future generations (Beil, 2016; Patel et al., 2015).

The psychological effects of being overweight or obese are especially difficult for most women. There are social and cultural implications involved as well (Carlson & Seacat, 2014). The stigma towards obese women can lead to low self-esteem and depression (Kulie et al., 2011). A woman experiencing weight-stigma is increasingly vulnerable to not only depression and esteem issues but to a poor body image, exercise avoidance and maladaptive eating behaviors (National Obesity Observatory [NOO], 2011). The NOO (2011) goes on to state there is a bi-directional relationship between obesity and mental health issues, with various levels of obesity, gender, age and socioeconomic status being contributing risk factors.

### **Obstacles**

Many obstacles can be attributed to why obesity counseling and treatments are not adequately being done. Lewis and Gudzone (2014) stated the lack of provider training, time, reimbursement and provider weight-bias as obstacles. According to Forman-Hoffman, Little, and Wahls (2006) many primary care health care providers (HCP) do not have adequate training in obesity treatments and are often unaware of facility options for weight loss. Many clinicians believe the patient's weight is related to a lack of will power and is their own fault. Proper seating, exam tables, large blood pressure cuffs, gowns, etcetera are not always available to accommodate these patients (National Institute of Diabetes and Digestive and Kidney Diseases, 2011). The patient-related barriers for weight loss and obesity treatments include feeling embarrassed and facing disrespectful comments about their weight by the HCP or staff. In a qualitative study by Metzgar, Preston, Miller, and Nickols-Richardson (2015) further patient barriers included: life transitions, internal and environmental pressures, health status changes, lack of accountability and social support.

### **Review of the Literature**



The review of literature included databases from: Medline (EBSCO), 1946-Present, Medline (OVID), 1946-Present, Google Scholar and Science Direct. Key words: Adiposity, Barriers, Obesity algorithms, Overweight and obesity practices, Primary care treatment for obesity, Weight loss, Weight loss methods, Weight loss guidelines, Guidelines for weight loss, Guidelines for overweight and obesity. The populations consisted of; Weight loss in women, Obesity treatments for Hispanic, African Americans, Asian and Indian women. Years included in the literature search were from 2000 to present. Limiters included: Abstracts available, full text online, peer-reviewed, English language, humans, female, and adults 19 and older. The searches produced 820,000 articles. Of the articles, 210 were relevant and 57 were used in the development of this project. Article selection was determined by whether each article was evidence-based, peer-reviewed and could be applied to women. Guidelines for the algorithm were evaluated and selected according to the Agency for Healthcare Research and Quality's guideline summaries.

A literature search revealed that the American Society of Bariatric Physicians, now called the Obesity Medicine Association, has an algorithm developed from evidence-based research (Obesity Medicine Association, 2017). This obesity algorithm is very comprehensive and details many options for treatment. A condensed version of this algorithm was developed by Horn (2013). The American Association of Clinical Endocrinologists (AACE) and the American College of Endocrinology (ACE) (Garvey et al., 2014) have an algorithm which includes more detailed staging of obesity and breaks down treatment and risk factors according to these stages. The American Diabetes Association also has an algorithm recommending therapies for weight loss, lifestyle choices and use of medications to treat type 2 diabetes in overweight and obese patients (American Diabetes Association, 2016).

The general consensus of high-quality evidence in developing an algorithm includes the following elements falling under the Five “A”s; Ask, Assess, Advise, Assist and Arrange (Fitch et al., 2013; National Health and Medical Research Council, 2013). Many of the evidence-based studies concurred in regard to the five “A”s, however, they did not include the diagnosis and treatment of overweight and obesity specifically for women.

Baseline anthropometric measurements are considered BMI, waist-circumference, weight and height. The 2013 AHA/ AAA/TOS Treatment Algorithm-Chronic Disease Management Model for Primary Care of Patients with Overweight and Obesity further classifies obesity according to BMI; 30-34.9 (Class I), 35-39.9 (Class II) and >40 (Class III) in (Jensen et al., 2013). The AACE and the ACE states in the 2014 “Advanced Framework for a New Diagnosis of Obesity as Chronic Disease” some specifics to clinical diagnostics and staging of obesity (Stages 0-2). The evidence strongly suggests the use of laboratory and other diagnostic tests such as blood pressure, fasting glucose, fasting lipid panel, creatinine along with hepatic transaminases and a full review of systems (Garvey et al., 2014). Other recommendations include fasting insulin, endocrine function along with a thorough history, family history, evaluation of risk factors and comorbid conditions.

Once the determination to lose weight has been made by the patient, the HCP should explain the risk factors involved and that a 5-10% weight reduction could significantly impact health (Fitch et al., 2013). The socio/social component, needs to be evaluated which includes the patient’s readiness to lose weight. Other factors to consider are realistic weight goal-setting, age and stage of life, cultural needs, ethnicity, economic and social circumstances, cognitive or physical disabilities and support system (National Institute for Health and Care Excellence [NICE], 2014)

Physical activity was universally agreed upon in every study as an important element for weight loss. The evidence suggests some form of aerobic exercise  $\geq 150$  minutes per week. Approximately 200 to 300 minutes per week of higher levels of physical activity are recommended to maintain weight or minimize regaining weight (Jensen et al., 2013).

Diet suggestions included estimating total energy needs according to the patient's lifestyle (sedentary, low active, active, and very active) and adjusting caloric and nutritional intake accordingly. The Academy of Nutrition and Dietetics in the 2014 Adult Weight Management Guideline details patient preferences, beliefs, attitudes and motivations as important components as well. The North American Association for the Study of Obesity (NAASO) and National Heart, Lung, and Blood Institute (NHLBI) have educational tools for reading labels, counting calories, meal planning, portion size and food substitution suggestions in the Practical Guide for Identification, Evaluation and Treatment of Overweight and Obesity in Adults (2000). This guideline contains an algorithm for treatment as well as follow up, which was seldom mentioned in the other studies.

According to recommendations from the Endocrine Society Clinical Practice Guideline pharmacological interventions are recommended for BMI  $\geq 27$  with any comorbidity or a BMI  $> 30$  (Apovian et al., 2015). This guideline also recommended, when possible, substituting current weight-causing medications for those that did not encourage weight gain. Multiple studies, including Yumuk et al. (2015) suggested when appropriate, treating with various drugs such as; Orlistat, Lorcaserin, Phentermine/ topiramate, Bupropione/ naltrexone or Liraglutide.

Monitoring the patient's weight is recommended to evaluate if treatments are effective or need to be adjusted. Office visits approximately once a month for the first

three months, then every three months during the first year to assess the patient's weight and measurements are recommended by Bays et al. (2013). While the Obesity Action Coalition (2017) suggests follow-up appointments once a month until target weight is achieved or a 5%-10% weight reduction. Most guidelines do not mention a specific timeline for follow-up appointments unless the patient has undergone bariatric surgery, but that they are encouraged. A calibrated scale at home, the use of phoning or emailing in their home weight, the use of mobile applications to monitor diet, weight and exercises are all proving to be effective as well to help patients stay focused on their goals (Allen, Stephens, Dennison Himmelfarb, Stewart, & Hauck, 2013).

A collaborative treatment plan is imperative. Evaluation of the patient's needs will be a priority to a successful weight loss program. Some patients will need treatment, in addition to their primary HCPs, from a registered dietician, psychiatrist, psychologist, physical therapist, personal trainer or social worker (Tsai & Wadden, 2009). Patients with insufficient or no insurance coverage will have more challenges and may need help locating the assistance they require. Possible community resources to consider include exercise facilities, weight loss groups for support, transportation, access to quality food sources, and childcare (National Institute of Diabetes and Digestive and Kidney Diseases, 2017). Everyone involved needs to work collaboratively and synergistically to help the patient achieve the desired goal.

When current guidelines were examined, what was found were many ways to treat overweight and obesity, however gaps in the literature included the previously mentioned lack of testing and follow-up timeframes. Also, ethnocentric and gender specificity was insufficient, however if ethnicity was mentioned often the study was conducted in a European country. There is a lack of high quality studies for weight

maintenance and prevention for normo-weight/ BMI individuals, as well as a lack of qualitative research on the patient's experiences and preferences with prevention, overweight and obesity interventions (Brauer et al., 2015). The "Clinical Practice Guidelines for Healthy Eating for Prevention and Treatment of Metabolic and Endocrine Diseases in Adults" outlined nutritional strategies for prevention and treatment for disease and conditions associated with overweight and obesity (Gonzalez-Campoy et al., 2013). Finally, according to Apovian et al., (2015) data regarding BMI gender variations is inadequate.

A simplified algorithm applicable and duplicable for everyday practice, inclusive for patients of all weight categories and stages is not available. The various obesity algorithms found were either very time consuming to evaluate or over generalized and not applicable in an easy to follow format. A practical application would be an algorithm designed from evidence-based guidelines, entailing a successive approach for each appointment. Clinical judgment should supersede the algorithm as needed per patient requirement.

### **Purpose**

This project is designed to help improve the care delivery system of how clinicians treat overweight and obesity. This is done through quality improvement of current practice in the women's health setting by a weight loss algorithm with recommendations from obesity experts, evidence-based research, and guidelines. The algorithm allows a more standardized and duplicable approach for HCPs to treat this disease, directed specifically for women's biological and emotional needs throughout this process, to ensure all aspects of obesity care are being addressed. The algorithm aims to inform practice about obesity and weight loss treatments, thus increasing clinician knowledge, treatment plans, and improved health outcomes for overweight

and obese female patients in a more efficient manner.

### **Method**

Implementation of this project began with a thorough literature search to identify best-practice guidelines for weight loss and any gaps pertaining to obesity treatment in women. Any existing weight loss algorithms were reviewed for clarity and clinical practicality.

This clinical project took place at two women's health clinics located near St. Louis, MO. The patient population was 50 women, 19 years old and older. The women have a BMI of  $> \underline{25}$  and a waist circumference of  $\geq 35$  inches (88cm). Permission to audit patient information was granted by the office manager at the healthcare facility. All necessary HIPPA documentation was processed. The project was approved by the IRB of the University of Missouri- St. Louis (Appendix A).

A retrospective audit tool was developed to compare evidence-based recommendations for weight loss to the treatments provided to the patients. The tool included items from the following guidelines; American Health Association/American College of Cardiology/The Obesity Society (Jensen et al., 2013), Academy of Nutrition and Dietetics (2014), Canadian Task Force on Preventative Health Care (Brauer et al., 2015), National Health and Medical Research Counsel (2013), National Institute for Health and Care Excellence (2014), the Institute for Clinical System Improvement (Fitch et al., 2013) and The Endocrine Society (Apovian et al., 2015). The audit tool displayed how often the recommended lab work, anthropometric measurements, medication, exercise and motivation were reviewed in the clinical setting for the initial and two subsequent appointments. The participant electronic health records (EHR) were reviewed, pertinent information was identified within the

audit tool and any discrepancies noted. This data was collected for a period of five months and the 50 patient charts were dated from 10/02/2014 through 01/06/2017. Data was extracted from each of the 50 charts and was compared for the frequency of patients whose care included the recommended items from the guidelines.

### **Results**

Fifty patient charts were audited for the first three consecutive visits for 71 items over the course of five months. After examination of the data analysis tool some discrepancies and inconsistencies were noted. Research indicates that the following assessments and tests (see below) be performed to treat overweight and obesity. Most research did not state when exactly each of these should be done but that it is recommended for better diagnosis and assessment for overweight and obesity, however, according to Bays et al. (2013) weight loss patients should be followed-up at least quarterly.

The labs collected at the initial appointment and as necessary include; CBC, CMP, Lipid, TSH Reflex, Vit D levels, HgA1C, and urine analysis (Seger et al., 2015). According to Steelman & Westman (2010) other forms of diagnostic testing such as ECG, cardiac stress testing, sleep studies, ultrasound of the liver and resting metabolic rate may indicated based on the results of clinical assessments and lab results.

An algorithm for a standardized approach was developed. The first three appointments follow a practical protocol allowing clinicians to address obesity with continuity of care. This standardization facilitates obesity treatment as other HCPs join the practice and are interested in treating this condition. The algorithm can be used as a template for current obesity practice providers and for new HCPs.

Some of the recommended items included in the algorithm are anthropometric

measurements such as: Body Mass index (BMI) to help define body fat based on height and weight. The definition of overweight according to BMI is 25-29.9, while obese is considered having a BMI of 30 or greater (U.S. Department of Health and Human Services, 2007). Other forms of measurement include; neck circumference, waist circumference, waist-to-hip ratio, bioelectric impedance, skinfold thickness, air-displacement plethysmography, DEXA, dilution method, CT and MRI scan as suggested by Hu (2008).

After analyzing the results there were some differences between the guidelines and actual patient care noted. Under Patient History; cardiovascular, pulmonary, gastrointestinal, psycho-social/ cultural, endocrine and tobacco and illicit drug use were reviewed 100% of the time within the first three visits (See Table 1).

Neurologic, medical/surgical conditions, medicine/ food allergies and current medications were reviewed at 98% of the appointments. Immune and eating disorders were examined at 10% of time while the patient's integument at 6%. Family history was reviewed specifically for obesity and applicable familial diseases respectively 94% and 100% of the time.

Nutritional history, including a review of the patient's 24-hour diet and eating habits were documented 100% of the time within the first three appoints. While physical activity was stated at 80%.

Vital signs, height, weight and BMI were taken and reviewed at each of the three appointments 100% of the time. While the measurement of waist circumference was performed 4% of the time and neck circumference at 8% within the first three appointments. The comprehensive physical exam included nose, throat, neck examined 100% of the time. Examination of the lungs, heart, abdomen, musculoskeletal, and integument were performed 98% of the time.



Recommended lab and bloodwork were taken at different portions of the time. Renal blood test was performed 98% of the time while liver enzymes and electrolytes 96%. A fasting liver panel was completed 88% of the time, vitamin D 86%, thyroid stimulating hormone with reflex 84%. A complete blood count was ordered 80% of the time, hemoglobin A1C 46%, uric acid 6% and urine analysis and urine examine for microalbumin were not done at all. Other diagnostic testing was done as indicated; fasting insulin 62%, C-reactive protein, testosterone and other androgens 12%, cortisol 6%. While glucose tolerance, prolactin, follicle stimulating hormone and luteinizing hormone 2% of the time. Finally, estradiol, pregnancy test and iron studies were not documented as done.

The category relating physical activity was as follows; assessment of physical readiness 96%, assess mobility 100%, assess fitness level 96% of the time.

Behavior therapy review included looking at the patient's triggers for overeating or eating the wrong types of foods 86% of the time. Assessment of the patient's knowledge deficit of what to do to lose weight was performed within the first three appointments 94% of the time. A look at the patient's stress and support system was examined at 92% of the appointments.

A review of the patient's medications contributing to weight gain or difficulty losing weight were performed 25% of the time and the medications were adjusted or discontinued 20% of the time. It was noted that 48% of the time patients were started on metformin. As this study progressed, medications known to encourage weight loss were added. These specific medications were prescribed 76% of the time. Once added they were continued within the three visits 76% of the time. Sixty-two percent were changed to another weight loss drug or had dosing alterations, while 38% were discontinued all together.

Finally, the use of electronic devices to assist in the weight loss process was listed as reviewed during 4% of the visits. The various devices measured caloric intake, physical activity, sleep schedules and some suggested recipes for the diets the patients were following.

When clinicians at the project site were asked why they did not address weight loss or follow the recommended guidelines, lack of valuable clinical time was the main reason, forgetting certain assessments and not wanting to impose on support staff for extra anthropometric measurements were also identified as factors. Lastly, one of the clinicians stated she felt uncomfortable bringing up such a sensitive topic to overweight women especially since she was of a slender build.

### **Discussion**

In summary measurements such as vital signs, the assessment of mobility and the discussion of the patients 24-hour diet were performed at every visit. Other items such as the neck and waist circumference were done under 10% of the time. These results are also listed in Table 1 and display the wide range of inconsistencies within the three appointments. The evidence-based recommended guidelines were not consistently followed.

Each of the above measurements and assessments should be looked at and documented according to evidence-based guidelines (Steelman & Westman, 2010). It is important to follow the recommended guidelines because without adequate anthropometric measurements, monitoring the patient's progress throughout treatment is difficult. For example, a neck circumference in women can help determine an obstructive sleep apnea risk (OSA) if  $> 16$  inches. Kushida (2010), goes on to state that neck circumference is one of the most powerful predictors of OSA, which impacts the cardiovascular, neurological, endocrine systems.

According to Moore and Cunningham (2012) the patient's history is related to their stress level, dietary behaviors and risk for obesity which should be routinely examined. The use of the 24-hour food recall survey to assess dietary intake and investigating the patient's physical activity was recommend by Beechy, Galpern, Petrone, and Das (2012).

Bays et al. (2013) mention that a fasting lipid panel should be performed to evaluate cardiovascular risk, metabolic syndrome/ insulin resistance. Steelman & Westman (2010) also recommend each of the tests listed above as routine laboratory tests for weight loss assessment and treatment.

Research by Meriwether, Lee, Lafleur, and Wiseman (2008) states that readiness, mobility and fitness level pertaining to physical activity should be addressed. This would allow some insight into the patient abilities, preferences and inclination towards exercise.

Patient triggers, knowledge deficits, stress level and support systems are all things to consider. These behaviors are an important part of the weight loss assessment according to Jacob and Isaac (2012) and ought to be incorporated into these appointments.

For the patient's medications, studies recommend reviewing and finding suitable alternatives if possible for medications known to increase body weight (Apovian et al., 2015). Bray (2013) suggests that using specific medications to help treat overweight and obesity can be beneficial because they enhance behaviorally-induced weight loss. Kumar and Aronne (2015) mention that obesity is a chronic disease and should be treated with medication, if needed, to assist patients lose weight. These studies go on to list some of the current FDA approved weight loss

medication currently available.

Finally, monitoring weight, food intake and physical activity using mobile applications have proved to be effective according to Allen, Stephens, Dennison Himmelfarb, Stewart and Hauck (2013). The results of all the items in the chart audit can be found in Table 1.

### **Development of Weight Loss Algorithm**

To assist in closing the practice gaps for weight loss treatment and addressing the main reasons as to why evidence-based practice was not being more uniformly followed an algorithm was designed, for visits one (Appendix B), two (Appendix C), and three (Appendix D). A template for clinical assessment and treatment that could be used in the EHR system for the initial and two subsequent appointments was designed. Evidence-based criteria specifically for the obesity treatment was included in the algorithm. The template contains parameters recommend by guidelines to improve assessment and treatment of overweight and obesity. This tool has a sequential flow looking at History, Physical and treatment plans but also includes Nutrition, Physical Activity, Behavioral Therapy, Weight Loss Medications and Patient Goals. The clinician has the option to use this template as an algorithm to help make decisions regarding treatment plans. For a HCP familiar with obesity treatments the template would serve as a reminder to include specific assessments and to a new clinician it would serve as a decision-making algorithm of treatment choices.

### **Patient Health History Form**

The next portion of this project consisted of developing a Patient Evaluation Health History Form (Appendix E). The patient could either download the form through email, if they have an electronic patient account set up, obtain through

standard mail or fill out when they arrive at the clinical setting. This would allow for better assessment and save clinical time. The form is based on the clinician algorithm while using simpler lay language and is designed to be able to transfer the information efficiently into the clinician assessment EHR. The ease of transferring this information will save the clinician time and avoid asking redundant or time-consuming questions, thus increase efficacy.

### **Obesity Parameters**

Finally, a work-order was put into the women's clinic IT department to include neck and waist circumference along with the standard BMI, height and weight measurements. This would serve as a reminder to get the necessary assessment measurements. The parameters of neck and waist circumferences were incorporated into the EHR Vital Signs and Measurements section. This involved putting in an input-request through the office manager and it went through the proper channels to the IT department. The extra measurements are considered a soft parameter, meaning they are optional without an alarm. According to the evidence previously cited, these measurements should be included for obesity treatment.

### **Limitations**

The limitations for this project consisted of finding three consecutive weight loss appointments. The appointments had to be for weight loss and not OB/GYN and there was some degree of no-show appointments as well. This resulted in the audit time spanning from 10/02/2014 through 01/06/2017; over that timeframe some of the practice assessments and charting had changed. The results showed the discrepancies of what assessments were not charted. In the process of completing the audit, data was sometimes found in sections of the EHR that were not consistent with where it should have been found so some data may have been missed. After observing many

weight loss appointments in this clinical setting, the clinician often reviewed more items and may have simply not documented all of them, thus the audit data does not reflect this.

### **Implications and Future Direction**

Implications for practice include utilizing this weight loss algorithm, patient health history forms and new measurement parameters to improve overweight and obese patient assessment and treatment. The trained obesity clinician and the new HCP interested in treating this disease will have an assessment and diagnostic tool to use accordingly. Finally, this algorithm will help close the gap between evidence-based research and clinical practice for treating overweight and obesity.

The future direction consists of training support staff and other clinicians of new measurement parameters and assessment tools. Future projects could then evaluate the effectiveness of the use of evidence-based algorithm in management of overweight and obesity. A pilot study will then be done to evaluate improvement of the recommended guidelines being addressed and documented.

### **Conclusion**

Weight loss needs to be a multifaceted approach. Clinicians adhering to a best-practice algorithm developed from the evidence will allow congruency and continuity of care. There are numerous patient variables associated with losing weight. Removing HCP and assessment tool inconsistencies from practice will give overweight and obese women a greater opportunity to succeed at their weight loss goals.

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TABLE 1

<b>History:</b>	
<b>Patient History:</b> cardiovascular, pulmonary, gastrointestinal, psychosocial/ cultural, endocrine and tobacco and illicit drug use.	100%
Neurologic, medical/surgical conditions, medicine/ food allergies and current medications.	98%
Immune and eating disorders.	10%
Integument	6%
<b>Family History:</b> obesity	94%
Applicable familial disease	100%
<b>Patient Nutritional History:</b> patient's 24-hour diet and eating habits	100%
<b>Patient Physical Activity:</b> Physical activity	80%
<b>Vitals/ Measurements</b>	
<b>Vital signs,</b> height, weight and BMI	100%
Waist circumference	4%
Neck circumference	8%
<b>Physical exam:</b> nose, throat, neck.	100%
Lungs, heart, abdomen, musculoskeletal, and integument	98%
<b>Lab work &amp; Diagnostic Testing:</b> Renal blood test	98%
Liver enzymes, electrolytes	96%
Fasting liver panel	88%
Vitamin D	86%
TSH w/ Reflex	84%
CBC	80%
HgbA1c	46%
Uric acid	6%
Urine Analysis	0%
<b>Additional Testing as Indicated:</b>	
Fasting Insulin	62%
C-reactive protein & Testosterone and other androgens	12%
Cortisol	6%
Glucose tolerance, prolactin, follicle stimulating hormone and luteinizing hormone	2%
<b>Activity</b>	
Physical activity: readiness	96%
Mobility	100%
Fitness level	96%
<b>Behavior:</b>	
Triggers or eating wrong kinds of food	86%
Knowledge deficit	94%
Stress and Support System	92%
<b>Medications:</b>	
Contributing to weight gain/ Difficulty losing	25%
Medications adjustments or discontinued	20%
Started on Metformin	48%
Weight loss medication prescribed	76%

Weight loss medication continued	76%
Weight loss medication change (types or dosing)	62%
Weight loss medication discontinued	38%
<b>Mobil Applications used for weight loss</b>	4%

**APPENDIX A****Office of Research Administration**

One University Boulevard  
 St. Louis, Missouri 63121-4499  
 Telephone: 314-516-5899  
 Fax: 314-516-6759

E-mail: ora@umsl.edu

DATE: January 21, 2017

TO: Jennifer Williams

FROM: University of Missouri-St. Louis IRB

PROJECT TITLE: [991570-1] A Functional Algorithm for Weight Loss and Obesity Practice:

Guide for Clinical Decision-Making for Treating Women

REFERENCE #:

SUBMISSION TYPE: New Project

ACTION: DETERMINATION OF EXEMPT STATUS

DECISION DATE: January 21, 2017

REVIEW CATEGORY: Exemption category # 4

The chairperson of the University of Missouri-St. Louis IRB has APPROVED the above mentioned protocol for research involving human subjects and determined that the project qualifies for exemption from full committee review under Title 45 Code of Federal Regulations Part 46.101b. The time period for this approval expires one year from the date listed above. You must notify the University of Missouri- St. Louis IRB in advance of any proposed major changes in your approved protocol, e.g., addition of research sites or research instruments. You must file an annual report with the committee. This report must indicate the starting date of the project and the number of subjects to date from start of project, or since last annual report, whichever is more recent.

Any consent or assent forms must be signed in duplicate and a copy provided to the subject. The principal investigator must retain the other copy of the signed consent form for at least three years following the completion of the research activity and they must be available for inspection if there is an official review of the UM-St. Louis human subjects research proceedings by the U.S. Department of Health and Human Services Office for Protection from Research Risks.

This action is officially recorded in the minutes of the committee. If you have any questions, please contact Carl Bassi at 314-516-6029 or bassi@umsl.edu. Please include your project title and reference number in all correspondence with this committee.

**APPENDIX B**  
**Template for Assessment and Treatment for Overweight and Obesity**  
**Appointment #1**

**INITIAL EXAM:**

Introduction, what can I do for you? May need to ask for permission to discuss body weight.

So, I understand you are interested in learning about some ways to obtain your weight goals?

**Complaint:****Past Medical History:****(Positive responses in bold)**

Cardiovascular: Afib, CHF, HTN, PE, Stroke, Varicosities, Heart palpitations

Pulmonary: Asthma, Dyspnea, OSA.

Neurologic: Intracranial hypertension, nerve entrapment (carpel tunnel etc.), Seizure disorders

Musculoskeletal: Altered center of gravity, Impaired balance, Immobility, Lower back pain, Myalgias, Osteoarthritis, Fibromyalgia, Accidents, Broken bones

Endocrine: Acanthosis Nigricans, DM, Insulin resistance/ Metabolic Syndrome, Decreased HDL, Hyper lipids, Hyper triglycerides,

Gastrointestinal: Cholelithitis, GERD, Glomerulopathy, Hernias, Nephrolithitis, urinary incontinence, pelvic prolapse

Integument: Carbuncles, Cellulitis, Bacterial or fungal skin fold infections, Skin tags, Stria distensae, Stasis pigmentation, hirsutism

Psycho/ Social: Anxiety, Body image dissatisfaction, Depression, Diminished sex drive, Eating disorders, Experienced bullying, Feeling unmotivated, Hopelessness, Impaired intimacy and sexual relationships, PTSD, Work absenteeism or decreased work production

Any Cancers:

Other:

**GYN History: (Positive Responses in Bold)**

GYN: PCOS, infertility, Difficulty getting pregnant, HX of reproductive assistance, heavy, irregular, or painful periods, missed or not having periods, diabetes when pregnant, Preeclampsia, endometriosis, Adenomyosis

Other:

**Past surgical History:****Social History:**

Significant others: Tobacco use: yes/ no, ETOH: yes/ no, Illicit drug use: yes/ no

Employment: Exercise: yes/ no

Feels safe: yes/ no Support at home: yes/ no

**Family History:**

Mother: Father: Sister: Sister 2: Brother:

Brother 2: Paternal Grandmother: Paternal Grandfather:

Maternal Grandmother: Maternal Grandfather:

**Allergies:** Food: Medication:

**Medications:** (Review and bold weight-related medications: Beta-blockers, CCB, insulins, sulfonylureas, thiazolidinediones, Meglitinides, glucocorticoids, estrogens,



Heart: RRR, no murmurs/rubs/gallops

Lungs: CTA x4

Breast: no lumps or masses

Abdomen: Soft, nontender, nondistended, no masses or hepatosplenomegaly, no hernia noted

Extremities: No clubbing, cyanosis, or edema. No varicosities

Skin: Warm and dry without rash, lesions acne. No acanthosis nigricans, No intertrigo, venous stasis ulcers, stasis pigmentation, no stria, no Russell sign

Pelvic:

**Laboratory Testing:**

CBC, CMP, Fasting Lipids, Liver enzymes, HgbA1c, THS/reflex, Insulin, Vitamin D levels, urine for microalbumin.

**Additional Testing:**

Hyperinsulinemia: Proinsulin, C-peptide, insulin

Unexplained oligomenorrhea or amenorrhea: Prolactin, estradiol, FSH, LH, HCG

PCOS, hirsutism, acne: testosterone, DHEA

Elevated triglycerides: Apolipoprotein B or particle number

Inflammation, Myalgias: C-reactive protein

Fatigue, Anemia: Fe+ studies: Fe+, total iron building capacity, ferritin

**ASSESSMENT:**

**DX:**

**Patient Management:**

**TREATMENT:**

**POC:**

**1. Nutrition:**

Carbs: (low carb: 50-150 /day, < 30 per 3-hour period, < 20 carbs/day)      Fats:

Increase healthy fats      Protein:

**2. Physical activity:**

Weight loss: (at least 150 minutes, preferably >300 minutes/ week of moderate or 150 minutes/ week of intense)      Maintenance: (higher levels and intensity >200-300 minutes/ week)

**3. Behavior therapy:**

(Ask, assist, advise, agree, arrange/assist). Motivation/ Goals:      Barriers:

Stress management:      Mobil Apps:

**4. Medication:**

(FDA approved anti-obesity medications for BMI  $\geq$  30Kg/m or for overweight BMI  $\geq$  27 with Type 2 DM, dyslipidemia, or HTN) No improvement after 12 weeks, increase dosing or consider alternate drug. Please review dosing and side-effects. List initial dose and titration schedule.

Cravings: Bupropion & Naltrexone/ CONTRAVE

Hunger: (Lorcaserin/ BELVIQ, Phentermine & Topamax/ QSYMIA,

Binge-eating: (VyVanse, Fluoxetine, topiramate, naltrexone)

Night-eating: (behavior therapy)

Diabetic: Liraglutide/ VICTOZA

Combo: Liraglutide/ SAXENDA

**5. Referrals:**

(Behavioral health, psychiatrist, primary care, cardiologist, endocrinologist, Sleep medicine)

FU: 8-12 weeks

**Pt Education:**

Discussed with patient:

Goals: Discussed most important goals/ motivators and possible barriers. SMART goals (specific, measurable, assignable, realistic, time-related)

Nutrition: Discussed keeping food diary, reviewed basics of nutrition, reduce carbohydrates, increase healthy fats (almonds, avocados, cheeses etc.) and protein (fish, chicken, beef, pork). What is insulin resistance/ metabolic syndrome, PCOS, DM, menopause and how does it relate to obesity.

Physical activity: Instructed pt to strive for at least 150 minutes, preferably > 300 minutes/ week. Explained to keep moving for NEAT (Non-exercise activity thermogenesis) Take stairs not elevator etc.

Keep daily activity logs.

Behavior therapy: Discussed triggers and what to do when they occur. Patient has support system in place. Encouraged mobile app to motivate, track activity and food intake.

Medication: Discussed how to take medication and potential side/effects

**APPENDIX C****Template for Assessment and Treatment for Overweight and Obesity  
Appointment #2****FOLLOW-UP EXAM:** (8-12 weeks)

Introduction: How are you doing? What are you enjoying or dislike about the weight loss program?

Medical changes?

**Complaint:**

**Allergies:** Food: Medication:

**(Positives in bold)**

**Medications:** (Review and bold weight-related medications: Beta-blockers, CCB, insulins, sulfonylureas, thiazolidinediones, Meglitinides, glucocorticoids, estrogens, Carbamazepine, Gabapentin, Valproate, TCAs, SSRIs, MAOIs, SNRIs, Lithium, Vigabatrin, Most Antipsychotics, some HAART, some Chemotherapies)

**List:****Nutrition:**

Timing: Frequency: Fast-food: Restaurants:

Meals and Snacks:

24 Hour recall: Breakfast: Lunch: Dinner: Snacks:

**Behavior Therapy:**

Triggers: Cravings: or nighttime eating, binge eating, emotional eating,

Cultural/ familial/ community influences:

Behavioral health: Yes/ No Psychiatry: Yes/ No

Stress management, hobbies, self-care

Assess motivation, reinforce/set new goals, review barriers

Support System:

**Physical Activity:**

Current mobility/ fitness level:

What kind: (frequency, intensity, time) Success/ failure

Motivation/ Readiness:

Goals: (improve health, quality of life, improve body weight and composition)

Barriers:

**Medication: (positive in bold).**

Cravings: Bupropion & Naltrexone/ CONTRAVE (dosing)

Hunger: (Lorcaserin/ BELVIQ, Phentermine & Topamax/ QSYMIA, (dosing)

Binge-eating: (Vyvanse, Fluoxetine, topiramate, naltrexone) (dosing)

Night-eating: (behavior therapy)

Diabetic: Liraglutide/ VICTOZA (dosing)

Combo: Liraglutide/ SAXENDA (dosing)

**Side Effects:****Review of Systems: (Positive responses in bold)**

Constitutional: Denies significant weight changes, fever, chills, fatigue

Psych: Denies feeling depressed, crying spells, anxiety, sleep disturbances, hopelessness, feeling guilty, unworthy, dislikes how clothing fits, forgetfulness, daytime sleepiness, stress, cognitive changes



HEENT: Denies visual changes, headaches, seizures, sinus problems, sore throat, dental problems, deviated septum,  
 Respiratory: Denies shortness of breath, cough, hemoptysis, wheezing, snoring, restless sleep or leg movements  
 Cardiovascular: Denies chest pain, palpitations, swelling of legs  
 Gastrointestinal: Denies fecal incontinence, incontinence of flatus, diarrhea, nausea/vomiting, constipation, bloody stools  
 Genitourinary: Denies urinary incontinence, urinary urgency, dysuria, dyspareunia, vaginal dryness  
 Breast: Denies breast masses, mastalgia, galactorrhea  
 Endocrine: Denies dry skin, hair loss/growth, abnormal thirst, hot flashes  
 Integumentary: Denies any rashes lesions, acne

**Objective Data:****Physical Exam:**

**VS: BP: P: Temp: R:**  
**WT: HT: BMI: Waist/hip:**  
**Neck circumference: > 16 inches yes/ no \_\_\_\_\_ inches/ cm**

General: Well nourished, age-appropriate looking female.

Anatomical paradox: apple or pear

Neuro/Psych: Normal mood and affect A&O.

HEENT: Normocephalic, atraumatic,

Neck: supple, no lymphadenopathy, no thyromegaly, no tooth enamel erosion

Tonsils Yes/ No Grade:

Heart: RRR, no murmurs/rubs/gallops

Lungs: CTA x4

Breast: no lumps or masses

Abdomen: Soft, nontender, nondistended, no masses or hepatosplenomegaly, no hernia noted

Extremities: No clubbing, cyanosis, or edema. No varicosities

Skin: Warm and dry without rash, lesions acne. No acanthosis nigricans, No intertrigo, venous stasis ulcers, stasis pigmentation, no stria, no Russell sign

Pelvic:

**Laboratory Testing:****Assessment:****DX:****Patient Management:****TREATMENT:****POC:****1. Nutrition:**

Carbs: (low carb: 50-150 /day, < 30 per 3-hour period, < 20 carbs/day) Fats:  
 Increase healthy fats Protein:

**2. Physical activity:**

Weight loss: (at least 150 minutes, preferably >300 minutes/ week of moderate or 150 minutes/ week of intense)

Maintenance: (higher levels of activity and intensity >200-300 minutes/ week)

**3. Behavior therapy:**

(Ask, assist, advise, agree, arrange/assist). Motivation/ Goals: Barriers:

Stress management: Mobile Apps: Yes/ No

**4. Medication/Dosing changes:****5. Referrals:**

(Behavioral health, psychiatrist, primary care, cardiologist, endocrinologist, Sleep medicine)

FU: 12 weeks

**Pt Education:**

Discussed with patient:

Goals: Discussed most important goals/ motivators and possible barriers. SMART goals (specific, measurable, assignable, realistic, time-related)

Nutrition: Discussed keeping food diary, reviewed basics of nutrition, reduce carbohydrates, increase healthy fats (almonds, avocados, cheeses etc.) and protein (fish, chicken, beef, pork). What is insulin resistance/ metabolic syndrome, PCOS, DM, menopause and how does it relate to obesity.

Physical activity: Instructed pt to strive for at least 150 minutes, preferably > 300 minutes/ week. Explained to keep moving for NEAT (Non-exercise activity thermogenesis) Take stairs not elevator etc.

Keep daily activity logs.

Behavior therapy: Discussed triggers and what to do when they occur. Patient has support system in place. Encouraged mobile app to motivate, track activity and food intake.

Medication: Discussed how to take medication and potential side/effects

**APPENDIX D****Template for Assessment and Treatment for Overweight and Obesity  
Appointment #3****FOLLOW-UP EXAM:** (6 months)

Introduction: How are you doing? What are you enjoying or dislike about the weight loss program?

Medical changes?

**Complaint:**

**Allergies:** Food: Medication:

**(Positive in bold)**

**Medications:** (Review and bold weight-related medications: Beta-blockers, CCB, insulins, sulfonylureas, thiazolidinediones, Meglitinides, glucocorticoids, estrogens, Carbamazepine, Gabapentin, Valproate, TCAs, SSRIs, MAOIs, SNRIs, Lithium, Vigabatrin, Most Antipsychotics, some HAART, some Chemotherapies)

**List:****Nutrition:**

Timing: Frequency: Fast-food: Restaurants:

Meals and Snacks:

24 Hour recall: Breakfast: Lunch: Dinner: Snacks:

**Behavior Therapy:**

Triggers: Cravings: or nighttime eating, binge eating, emotional eating,

Cultural/ familial/ community influences:

Behavioral health: Yes/ No Psychiatry: Yes/ No

Stress management, hobbies, self-care

Motivation, reinforce/set new goals, review barriers

Support system:

**Physical Activity:**

Current mobility/ fitness level:

What kind: (frequency, intensity, time) Success/ failure

Motivation/ Readiness:

Goals: (improve health, quality of life, improve body weight and composition)

Barriers:

**Medication: (Positive in Bold)**

Cravings: Bupropion & Naltrexone/ CONTRAVE (dosing)

Hunger: (Lorcaserin/ BELVIQ, Phentermine & Topamax/ QSYMIA, (dosing)

Binge-eating: (VyVanse, Fluoxetine, topiramate, naltrexone) (dosing)

Night-eating: (behavior therapy)

Diabetic: Liraglutide/ VICTOZA (dosing)

Combo: Liraglutide/ SAXENDA (dosing)

**Side Effects:****Review of Systems: (Positive responses in bold)**

Constitutional: Denies significant weight changes, fever, chills, fatigue

Psych: Denies feeling depressed, crying spells, anxiety, sleep disturbances, hopelessness, feeling guilty, unworthy, dislikes how clothing fits, forgetfulness, daytime sleepiness, stress, cognitive changes

HEENT: Denies visual changes, headaches, seizures, sinus problems, sore throat, dental problems, deviated septum,  
 Respiratory: Denies shortness of breath, cough, hemoptysis, wheezing, snoring, restless sleep or leg movements  
 Cardiovascular: Denies chest pain, palpitations, swelling of legs  
 Gastrointestinal: Denies fecal incontinence, incontinence of flatus, diarrhea, nausea/vomiting, constipation, bloody stools  
 Genitourinary: Denies urinary incontinence, urinary urgency, dysuria, dyspareunia, vaginal dryness  
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Extremities: No clubbing, cyanosis, or edema. No varicosities

Skin: Warm and dry without rash, lesions acne. No acanthosis nigricans, No intertrigo, venous stasis ulcers, stasis pigmentation, no stria, no Russell sign

Pelvic:

**Laboratory Testing:** (Optional) Lipids, HgA1c, Insulin, Vitamin D

**Assessment:****DX:****Patient Management:****TREATMENT:****POC:****1. Nutrition:**

Carbs: (low carb: 50-150 /day, < 30 per 3-hour period, < 20 carbs/day) Fats:

Increase healthy fats Protein:

**2. Physical activity:**

Weight loss: (at least 150 minutes preferably >300 minutes/ week of moderate or 150 minutes/ week of intense) Maintenance: (higher levels and intensity >

200-300 minutes/ week)

**3. Behavior therapy:**

Motivation/ Goals: Barriers: Stress management:

Mobile Apps: Yes/ No

**4. Medication/Dosing changes:****5. Referrals:**

(Behavioral health, psychiatrist, primary care, cardiologist, endocrinologist, Sleep medicine)

FU: 12 weeks

**Pt Education:**

Discussed with patient:

Goals: Discussed most important goals/ motivators and possible barriers. SMART goals (specific, measurable, assignable, realistic, time-related)

Nutrition: Discussed keeping food diary, reviewed basics of nutrition, reduce carbohydrates, increase healthy fats (almonds, avocados, cheeses etc.) and protein (fish, chicken, beef, pork). What is insulin resistance/ metabolic syndrome, PCOS, DM, menopause and how does it relate to obesity.

Physical activity: Instructed pt to strive for at least 150 minutes preferably >300 minutes/ week. Explained to keep moving for NEAT (Non-exercise activity thermogenesis) Take stairs not elevator etc.

Keep daily activity logs.

Behavior therapy: Discussed triggers and what to do when they occur. Patient has support system in place. Encouraged mobile app to motivate, track activity and food intake.

Medication: Discussed how to take medication and potential side/effects

**APPENDIX E****Health History****(To be Used with Current Facility Patient Health History Form)**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Date of Birth: \_\_\_\_\_ Race/Ethnicity: \_\_\_\_\_

What are your expectations from treatment? Please be specific. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Do you have any allergies? (Please list) \_\_\_\_\_

\_\_\_\_\_

**Medical History: (Please Circle)****Cardiovascular:** AFib, Congestive heart failure, High Blood Pressure, Pulmonary Embolism, Stroke, Varicose veins, Heart palpitations**Pulmonary:** Asthma, Difficulty breathing, Sleep Apnea, Ever been told you snore**\*Please fill out Epworth Sleepiness Scale Form****Neurologic:** High blood Pressure in the Brain, Nerve entrapment (carpel tunnel etc.), Seizure disorders**Musculoskeletal:** Altered center of gravity, Impaired balance, Immobility, Lower back pain, Myalgias, Osteoarthritis, Fibromyalgia, Accidents, Broken bones**Endocrine:** Acanthosis Nigricans, Diabetes, Insulin resistance/ Metabolic Syndrome, Decreased HDL (good cholesterol), High cholesterol, High triglycerides, Thyroid Disorders, Hashimotos Disease, Inflammation, Rheumatoid Disorders**Gastrointestinal:** Cholelithitis, GERD, Glomerulopathy, Hernias, Nephrolithitis, urinary incontinence, pelvic prolapse**Integument:** Carbuncles, Cellulitis, Bacterial or fungal skin fold infections, Skin tags, Stretch marks, Discolored skin from poor circulation, Unwanted or excessive hair growth (facial etc.)**Psycho/ Social:** Tiredness, Anxiety, Body image dissatisfaction, Depression, Diminished sex drive, Eating disorders, Experienced bullying, Feeling unmotivated, Hopelessness, Impaired intimacy and sexual relationships, PTSD, Work absenteeism or decreased work production**\*Please fill out Patient Health Questionnaire (PHQ-9)**

Any Cancers: \_\_\_\_\_

Anything else? \_\_\_\_\_

\_\_\_\_\_

**GYN History:**

Number of pregnancies: \_\_\_\_\_

Birth Control: \_\_\_\_\_

**GYN:** Any history of: PCOS, infertility, Difficulty getting pregnant, history of reproductive assistance, heavy, irregular, or painful periods, missed or not having periods, diabetes when pregnant, preeclampsia, endometriosis, adenomyosis

Other:

---

**Past surgical History:**

---

Serious Accident/ Injuries?

---

**Social History: (Please Circle)**

Significant others (who):

Tobacco use: yes/ no, ETOH: yes/ no, Illicit drug use: yes/ no

Employment (where):

Exercise: yes/ no

Feels safe: yes/ no

Support at home: yes/ no

**Family History: (Please Circle)**

Any serious or weight-related diseases?

Mother:            Father:            Sister:            Sister 2:

Brother:            Brother 2:

Paternal Grandmother:            Paternal Grandfather:

Maternal Grandmother:            Maternal Grandfather:

**Nutritional History: (Please Circle)**

**\*Please fill out 24 -Hour Diet Recall Form**

Eat: Breakfast            Lunch            Dinner            Snacks

**Behavior History: (Please Circle)**

Cravings	Yes	No
Hunger	Yes	No
Triggers	Yes	No
Binge Eat	Yes	No
Night Eating	Yes	No
Emotional Eating	Yes	No
Cook at Home	Yes	No
Eat Fast-Food	Yes	No
Eat at Restaurants	Yes	No
Support System	Yes	No
History of Abuse	Yes	No
Ever tried to hurt yourself	Yes	No

**Physical Activity History: (Please Circle)**

Exercise	Yes	No
Work	Yes	No
Goals	Yes	No
Barriers	Yes	No

**Health Maintenance: (Please Circle and Write in Date)**

PAP            Mammogram            Colonoscopy