South Denver Internal Medicine

Personalized Concierge Medical Care

Comprehensive Health Exam

Patient Name

Date

Personal & Confidential

Charles H. Miranda, MD, FACP
Certified, Board of Internal Medicine

Sky Ridge Medical Center
10103 RidgeGate Pkwy, Suite 114
Lone Tree, CO 80124
303-799-8890

South Denver Internal Medicine
10103 Ridge Gate Parkway #114 Lone Tree, CO 80124
(303) 799-8890 Fax: (303) 799-8891

Mr. Test Patient
Male DOB: 01/01/1959 6645-2180001

Home: (111) 222-3333

03/02/2014 - Office Visit: CONCIERGE PHYSICAL
Provider: Charles Miranda, M.D.
Location of Care: South Denver Internal Medicine

History of Present Illness:
PATIENT IS HERE FOR CONCIERGE EXECUTIVE PHYSICAL EXAMINATION
ALL LABORATORY AND TESTS WERE REVIEWED WITH PATIENT.

DIET:
BREAKFAST: EGGS, BACON, AND TOAST OR OATMEAL, FRUIT AND YOGURT; COFFEE TO DRINK
LUNCH: HAMBURGER, FRIES AND A COKE TO DRINK OR SALAD WITH SALMON AND WATER TO DRINK
DINNER: RIBEYE STEAK, BAKED POTATO, AND A BEER TO DRINK OR ROASTED CHICKEN, VEGETABLES, SALAD AND A GLASS OF RED WINE TO DRINK.
PORTION SIZES: AVERAGE
FRUITS/VEGETABLES SERVINGS: VARIES ANYWHERE FROM 0-6 DEPENDING ON WHAT I EAT

EXERCISE:
TYPE: WALKING THE DOG
DURATION: 45 MINUTES
TIMES PER WEEK: 5

SUPPLEMENTS: MULTIVITAMIN, FISH OIL, ASPIRIN, VITAMIN D.

SLEEP:
GOES TO BED AT: 11 PM
FALLS ASLEEP IN: 30 MINUTES
WAKES UP AT: 6:30 AM
SLEEPS FOR: 7 HOURS
AWAKENING AT NIGHT: ONCE TO URINATE AND ABLE TO GO RIGHT BACK TO BED.
SNORES: MY WIFE SAYS I DO
WAKES UP TIRED: SOMETIMES
DAYTIME FATIGUE: SOMETIMES

IMMUNIZATIONS:
INFLUENZA: 2013
TDAP: 2005
PNEUMOVAX: NO
SHINGLES: NO

CONCERNS ABOUT DEPRESSION: SYMPTOMS ARE UNDER CONTROL ON WELLBUTRIN THERAPY
CONCERNS ABOUT ANXIETY: NO

OTHER CONCERNS: SEE REVIEW OF SYSTEMS

Past Medical History:
HYPERTENSION
HYPERLIPIDEMIA

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Past Surgical History:

RIGHT INGUINAL HERNIA REPAIR
TONSILLECTOMY
VASECTOMY

MEDICATIONS

HUMULIN R 100 UNIT/ML INJ SOLN (INSULIN REGULAR HUMAN) use as directed
WELLBUTRIN XL 300 MG TB24 (BUPROPION HCL) 1 po qd
AMOXICILLIN CAPS 500 MG (AMOXICILLIN) one capsule by mouth three times daily
LISINOPRIL 40 MG TABS (LISINOPRIL) ONE BY MOUTH DAILY
TEST
COZAAR 50 MG TABS (LOSARTAN POTASSIUM) 1 po qd
AMBIEN CR 12.5 MG TBCR (ZOLPIDEM TARTRATE) one by mouth each evening as needed sleep

Family History:

FH HEART DISEASE, FATHER DIED AT AGE 60 FROM A HEART ATTACK
FH HYPERTENSION, FATHER
FH HYPERLIPIDEMIA, FATHER
FH MELANOMA, MOTHER

Social History:

MARRIED
3 CHILDREN
Occupation: MANAGEMENT

Risk Factors:

Tobacco use: never
Passive smoke exposure: yes
Drug use: no
HIV high-risk behavior: no
Caffeine use: 2 drinks per day
Alcohol use: yes
  Type: BEER OR WINE
  Drinks per day: 2
  Has patient --
    Felt need to cut down: no
    Been annoyed by complaints: no
    Felt guilty about drinking: no
    Needed eye opener in the morning: no
Exercise: yes
  Times per week: 5
  Type: WALKS THE DOG FOR 45 MINUTES

Review of Systems

General

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Complains of fatigue.
Denies abnormal bleeding, abnormal bruising, chills, cold intolerance, dizziness, fainting, fever, flushing, heat intolerance, loss of appetite, lymph node enlarged, night sweats, sleep disturbance, thirst excessive, weight gain, and weight loss.

Eyes
Complains of blurry vision.
Denies double vision, dry eyes, eye discharge, eye pain, floaters, light sensitivity, and vision loss.
REFERRED TO EYE DOCTOR FOR FURTHER EVALUATION

ENT
Denies bleeding gums, earache, ear discharge, hearing loss, hoarseness, nasal congestion, nosebleeds, ringing in the ears, seasonal allergies, sore throat, and vertigo.

CV
Complains of exercise intolerance.
Denies chest discomfort, chest pain, difficulty breathing at night, leg cramps with exercise, palpitations, racing heart beats, and swelling.

Resp
Complains of short of breath.
Denies breathing problems, cough, coughing up blood, snoring, sputum, and wheezing.

GI
Denies abdominal pain, black tarry stools, bloating, bloody stools, change in bowel habits, constipation, diarrhea, excessive gas, heartburn and indigestion, hemorrhoids, nausea, swallowing difficulty, swallowing pain, vomiting, and vomiting blood.

GU (urinary)
Denies blood in urine, inability to control bladder, inability to empty bladder, frequent urination, genital sores, lack of sexual drive, night time urination, painful urination, urinary urgency, and weak urinary stream.

Muscles and Joints
Denies back pain, joint pain, joint swelling, morning stiffness, muscle cramps, and muscle weakness.

Skin
Denies change in moles, excessive dry skin, hair loss, hives, itching, nail changes, rash, skin cancer, and sores non-healing.

Neuro
Denies Concentration difficulty, falling down, headaches, numbnes or tingling, paralysis, poor balance, seizures, tremors, and weakness.

Psych
Complains of anxiety.
Denies depression, hallucinations, suicidal thoughts, and violent thoughts.

Men Only
Denies lump in testicle, penis discharge, and sore on penis.

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Vital Signs:

Patient Profile:	55 Years Old Male
Height:	72 inches (157.48 cm)
Weight:	225 pounds
BMI:	30.63
O2 Sat:	96 %
Temp:	98.6 degrees F
Pulse rate:	75 / minute
BP sitting:	117 / 80

Vision Screening:
Left eye with correction: 20 / 20
Right eye with correction: 20 / 20
Both eyes with correction: 20 / 20
Color vision testing: normal

Vision Entered By: Charles Miranda, M.D. (March 2, 2014 10:06 PM)

Physical Exam

General:
well developed, well nourished, in no acute distress.
Head:
normocephalic and atraumatic.
Eyes:
PERRL/EOM intact, conjunctiva and sclera clear with out nystagmus.
Ears:
TM's intact and clear with normal canals with grossly normal hearing.
Mouth:
no deformity or lesions with good dentition.
Neck:
no masses, thyromegaly, or abnormal cervical nodes, carotios without bruits.
Lungs:
clear bilaterally to auscultation.
Heart:
non-displaced PMI, chest non-tender; regular rate and rhythm, S1, S2 without murmurs, rubs, or gallops
Abdomen:
Soft, non-tender, normal bowel sounds; no hepatosplenomegaly no ventral,umbilical hernias or masses noted.
Rectal:
normal external exam. hemoccult negative.
Genitalia:
normal male, testes descended bilaterally without masses, no hernias, no varicoceles noted.
Prostate:
normal size prostate without nodules or assymetry
Msk:
no deformity or scoliosis noted of thoracic or lumbar spine.
Pulses:
pulses normal in all 4 extremities.

Extremities:
no clubbing, cyanosis, edema.
Neurologic:
no focal deficits, cranial nerves II-XII grossly intact with normal sensation, reflexes, coordination, muscle stregnth and tone.
Skin:
without lesions or rashes.
Cervical Nodes:
no significant adenopathy.
Axillary Nodes:
no significant adenopathy.
Inguinal Nodes:
no significant adenopathy.
Psych:
alert and cooperative; normal mood and affect; normal attention span and concentration.

Impression & Recommendations:

Problem # 1: Physical exam, routine (ICD-V70.0) (ICD10-Z00.00)
AUDIOGRAM IS NORMAL
SPIROMETRY IS NORMAL
ECG IS NORMAL

Problem # 2: Screen Colon Cancer (ICD-V76.51) (ICD10-Z98.89)
COLONOSCOPY IS DUE
REFERRED TO SOUTH DENVER GASTROENTROLOGY FOR A COLONSOCOPY

Problem # 3: Screen Skin Cancer (ICD-V76.43) (ICD10-Z12.83)
REFERRED FOR A SKIN CANCER SCREENING
MOTHER HAD MELANOMA

Problem # 4: Screening for Prostate Cancer (ICD-V76.44) (ICD10-Z98.89)
NORMAL PSA
NORMAL EXAM

Problem # 5: Hypertension (ICD-401.1) (ICD10-I10)
BLOOD PRESSURE IS UNDER EXELLENT CONTROL.

The following medications were removed from the medication list:
Cozaar 50 Mg Tabs (Losartan potassium) ..... 1 po qd

His updated medication list for this problem includes:
Lisinopril 40 Mg Tabs (Lisinopril) ..... One by mouth daily

Problem # 6: Hyperlipidemia (ICD-272.4) (ICD10-E78.5)
CHOLESTEROL IS UNDER GOOD CONTROL

His updated medication list for this problem includes:

Lipitor 10 Mg Tabs (Atorvastatin calcium) ..... One by mouth once a day

Problem # 7: Dyspnea (ICD-786.09) (ICD10-R06.00)
SHORTNESS OF BREATH TOGETHER WITH EXERCISE INTOLERANCE CAN BE AN INDICATOR OF UNDIAGNOSED HEART DISEASE
RECOMMEND STRESS TEST AND CALCIUM HEART SCORE

His updated medication list for this problem includes:
Lisinopril 40 Mg Tabs (Lisinopril) ..... One by mouth daily

Problem # 8: Depression (ICD-311) (ICD10-F32.9)
CONTROLLED ON WELLBUTRIN

Problem # 9: Family history of ischemic heart disease (ICD-V17.3) (ICD10-Z82.49)
STRONG FAMILY HISTORY OF HEART DISEASE
RECOMMEND STRESS TEST AND CALCIUM HEART SCORE

Problem # 10: Fatigue (ICD-780.79) (ICD10-R53.83)
NO EVIDENCE FOR FATIGUE FOUND IN BLOOD WORK OR IN PHYSICAL EXAMINATION
HIS SLEEP IS ADEQUATE.
THIS COULD BE RELATED TO UNDIAGNOSED HEART DISEASE.

Medications Added to Medication List This Visit:
1) Aspirin 81 Mg Tabs (Aspirin) .... One tablet by mouth daily
2) Lipitor 10 Mg Tabs (Atorvastatin calcium) .... One by mouth once a day
3) Wellbutrin Xl 300 Mg Tb24 (Bupropion hcl) .... One by mouth once a day

Patient Instructions:
1) THE SECOND DIET THAT YOU REPORTED IS CONSIDERED HEALTHY
2) REDUCE YOUR PORTION SIZES
3) EAT 5-6 SERVINGS OF FRUITS AND VEGETABLES DAILY
4) OBTAIN A STRESS TEST
5) OBTAIN A CALCIUM HEART SCORE
6) ONCE WE HAVE DETERMINED THAT YOUR HEART IS OKAY FOR EXERCISE AN EXERCISE PROGRAM WILL BE DESINGED FOR YOU THAT WILL INCLUDE AEROBIC EXERCISE, MUSCLE STRENGTHENING EXERCISE AND FLEXIBILITY/BALANCE TRAINING.
7) YOUR SLEEP IS ADEQUATE AND WILL IMPROVE ONCE YOU START AN EXERCISE PROGRAM
8) OBTAIN A COLONOSCOPY
9) OBTAIN AN EYE EXAMINATION BY YOUR EYE DOCTOR
10) OBTAIN A SKIN CANCER SCREENING EXAM BY A DERMATOLOGIST.
11) CONTINUE YOUR PRESENT MEDICATIONS.
12) WE WILL FOLLOW UP WITH YOU AFTER THE REST OF YOUR TESTING IS COMPLETE.

Electronically signed by Charles Miranda, M.D. on 03/02/2014 at 10:18 PM

LABORATORY TESTS

The following descriptions explain the meaning, purpose and significance of our most commonly ordered laboratory tests.

COMPLETE BLOOD COUNT (CBC) A CBC measures important information about the kinds and numbers of cells in the blood, especially red blood cells, white blood cells, and platelets. A CBC helps check many symptoms, such as weakness, fatigue, or bruising. A CBC also helps diagnose conditions, such as anemia, infection, and many other disorders.

1. **WBC (white blood cell count)** protects the body against infection. White blood cells attack and destroy the bacteria, virus, or other organism causing infection.
2. **WBC differential (white blood cell types)** The major types of white blood cells are neutrophils, lymphocytes, monocytes, eosinophils, and basophils. Each type of cell plays a different role in protecting the body. Neutrophils help fight off bacterial infections. Lymphocytes help fight off viral infections. Monocytes help ward off other atypical infections. Eosinophils are present in allergic or parasitic disorders.
3. **Red blood cell (RBC) count.** Red blood cells carry oxygen from the lungs to the rest of the body. A low red blood cell count can be seen in anemia.
4. **Hematocrit (HCT)** measures the amount of space (volume) red blood cells take up in the blood. The value is given as a percentage of red blood cells in a certain volume of blood. For example, a hematocrit of 38 means that 38% of the blood's volume is made of red blood cells. Hematocrit and hemoglobin values that are low indicate the presence of anemia.
5. **Hemoglobin (Hgb)** The hemoglobin molecule fills up the red blood cells. It carries oxygen and gives the blood cell its red color. The hemoglobin is a good measure of the blood's ability to carry oxygen throughout the body.
6. **Red blood cell indices** The three red blood cell indices are mean corpuscular volume **(MCV)**, mean corpuscular hemoglobin **(MCH)**, and mean corpuscular hemoglobin concentration **(MCHC)**. The MCV shows the size of the red blood cells. The MCH value is the amount of hemoglobin in an average red blood cell. The MCHC measures the concentration of hemoglobin in an average red blood cell. These numbers help in the diagnosis of different types of anemia.
7. **Red cell distribution width (RDW)** indicates if the red blood cells are all the same or different sizes or shapes. An elevated RDW may indicate the presence of iron deficiency anemia.
8. **Platelet count.** Platelets are the smallest type of blood cell. They are important in blood clotting. When bleeding occurs, the platelets swell, clump together, and form a sticky plug that helps stop the bleeding.

Tests: (1) TSH (30163E)

TSH	2.12 MIU/L	0.40-4.50	*1

Tests: (2) CBC (INC. DIFF/PLT) (42A)

WBC	6.4 THOUS/MCL	3.8-10.8	*2
RBC	5.09 MILL/MCL	4.20-5.80	*3
HEMOGLOBIN	16.6 GM/DL	13.4-18.0	*4
HEMATOCRIT	49.8 %	40.0-54.0	*5
MCV	97.8 FL	80.0-100.0	*6
MCH	32.6 PG	27.0-33.0	*7
MCHC	33.3 GM/DL	32.0-36.0	*8
RDW	13.9 %	11.0-15.0	*9
PLATELET COUNT	182 THOUS/MCL	140-400	*10
MPV	10.3 FL	7.5-11.5	*11
! ABSOLUTE NEUTROPHILS	3302 CELLS/MCL	1500-7800	*12
ABSOLUTE LYMPHOCYTES	2304 CELLS/MCL	850-3900	*13
ABSOLUTE MONOCYTES	378 CELLS/MCL	200-950	*14
! ABSOLUTE EOSINOPHILS	378 CELLS/MCL	0-500	*15
! ABSOLUTE BASOPHILS	38 CELLS/MCL	0-200	*16
NEUTROPHILS	51.6 %		*17
LYMPHOCYTES	36.0 %		*18
MONOCYTES	5.9 %		*19
EOSINOPHILS	5.9 %		*20
BASOPHILS	0.6 %		*21

Tests: (3) LIPID PANEL (968T)

CHOLESTEROL, SERUM	182 MG/DL	125-200	*22
TRIGLYCERIDES, SERUM	88 MG/DL	<150	*23
HDL CHOLESTEROL	57 MG/DL	>=40	*24
LDL	107 MG/DL	<130	*25
CHOL/HDL RATIO	3.2 RATIO	<=5.0	*26
! NON-HDL CHOLESTEROL	125 MG/DL	SEE BELOW	*27

> OR = 20 YRS: TARGET FOR NON-HDL CHOLESTEROL IS 30 MG/DL HIGHER THAN LDL-CHOLESTEROL TARGET

Tests: (4) PSA, TOTAL (28571E)

PSA, TOTAL	0.1 NG/ML	0.0-4.0	*28

THIS TEST WAS PERFORMED USING THE SIEMENS (BAYER) CHEMILUMINESCENT METHOD. VALUES OBTAINED FROM DIFFERENT ASSAY METHODS CANNOT BE USED INTERCHANGEABLY. PSA LEVELS, REGARDLESS OF VALUE, SHOULD NOT BE INTERPRETED AS ABSOLUTE EVIDENCE OF THE PRESENCE OR ABSENCE OF DISEASE.

Tests: (5) URINALYSIS W MICRO (34F)

URINE COLOR	YELLOW	YELLOW	*29
URINE APPEARANCE	CLEAR	CLEAR	*30

URINE SPECIFIC GRAVITY			
	1.015	1.001-1.035	*31
PH, URINE	7.5	5.0-8.0	*32
URINE PROTEIN	NEGATIVE	NEGATIVE	*33
URINE GLUCOSE	NEGATIVE	NEGATIVE	*34
URINE KETONES	NEGATIVE	NEGATIVE	*35
URINE BLOOD	NEGATIVE	NEGATIVE	*36
URINE NITRITES	NEGATIVE	NEGATIVE	*37
URINE BILIRUBIN	NEGATIVE	NEGATIVE	*38
LEUKOCYTE ESTERASE	NEGATIVE	NEGATIVE	*39
URINE WBC	NONE SEEN CELLS/HPF	0-5	*40
SQUAMOUS EPITHELIAL	NONE SEEN CELLS/HPF	0-5	*41
TRANSITIONAL EPITHELIAL			
	NONE SEEN CELLS/HPF	0-5	*42
! RENAL EPITHELIAL	NONE SEEN CELLS/HPF	0-3	*43
URINE RBC	NONE SEEN RBCS/HPF	0-3	*44
CASTS # (URINE)	NONE SEEN /LPF	NONE SEEN	*45
! CASTS (URINE)	NONE SEEN		*46
BACTERIA (URINE)	NONE SEEN /HPF	NONE SEEN	*47
YEAST (URINE)	NONE SEEN /HPF	NONE SEEN	*48
! CRYSTALS #(URINE)	NONE SEEN /HPF	NONE SEEN,FEW	*49
! CRYSTALS (URINE)	NONE SEEN		*50
! ADDITIONAL OBSERVATIONS			
	NONE	NONE	*51

Tests: (6) COMP METABOLIC PANEL W/EGFR (10231X)

GLUCOSE	94 MG/DL	FASTING: 65-99	*52
UREA NITROGEN, SERUM	13 MG/DL	7-25	*53
CREATININE, SERUM	1.03 MG/DL	0.70-1.25	*54
! EGFR	76 ML/MIN/1.73M2	>59	*55
FOR AFRICAN AMERICAN PATIENTS, MULTIPLY THE EGFR BY		1.159	
BUN/CREATININE RATIO	12.6 RATIO	6-22	*56
SODIUM, SERUM	140 MMOL/L	135-146	*57
POTASSIUM, SERUM	4.6 MMOL/L	3.5-5.3	*58
CHLORIDE, SERUM	107 MMOL/L	98-110	*59
CARBON DIOXIDE	24 MMOL/L	18-31	*60
CALCIUM, SERUM	9.3 MG/DL	8.6-10.4	*61
PROTEIN, TOTAL SERUM	6.6 G/DL	6.1-8.1	*62
ALBUMIN, SERUM	4.3 G/DL	3.6-5.1	*63
GLOBULIN	2.3 G/DL	1.9-3.7	*64
A/G RATIO	1.9 RATIO	1.0-2.5	*65
BILIRUBIN, TOTAL	0.6 MG/DL	0.2-1.2	*66
ALKALINE PHOSPHATASE	44 U/L	40-115	*67
AST (SGOT)	16 U/L	10-35	*68
ALT (SGPT)	16 U/L	9-46	*69

COMMENTS:
FASTING

Ambco Audiometer
Model 1000 + OtoScreen
Serial Number:4859 ANSI S3/6 - 1996

NAME_____ DATE_____

Screening (Hz)

	1000	2000	3000	4000Hz
RIGHT EAR	Pass	Pass	Pass	Pass

dB: 20

	1000	2000	3000	4000Hz
LEFT EAR	Pass	Pass	Pass	Pass

Tested by_____

Ambco Audiometer
Model 1000 + OtoScreen
Serial Number:4859 ANSI S3/6 - 1996

AUTOMATIC HEARING TEST DATE_____

NAME_____ ID_____

FREQUENCY	RIGHT	LEFT (EAR)
500 Hz	10	10
1000 Hz	0	0
2000 Hz	0	0
3000 Hz	10	15
4000 Hz	20	5
6000 Hz	10	15
8000 Hz	5	15

Tested by_____

[redacted]
ID: [redacted]

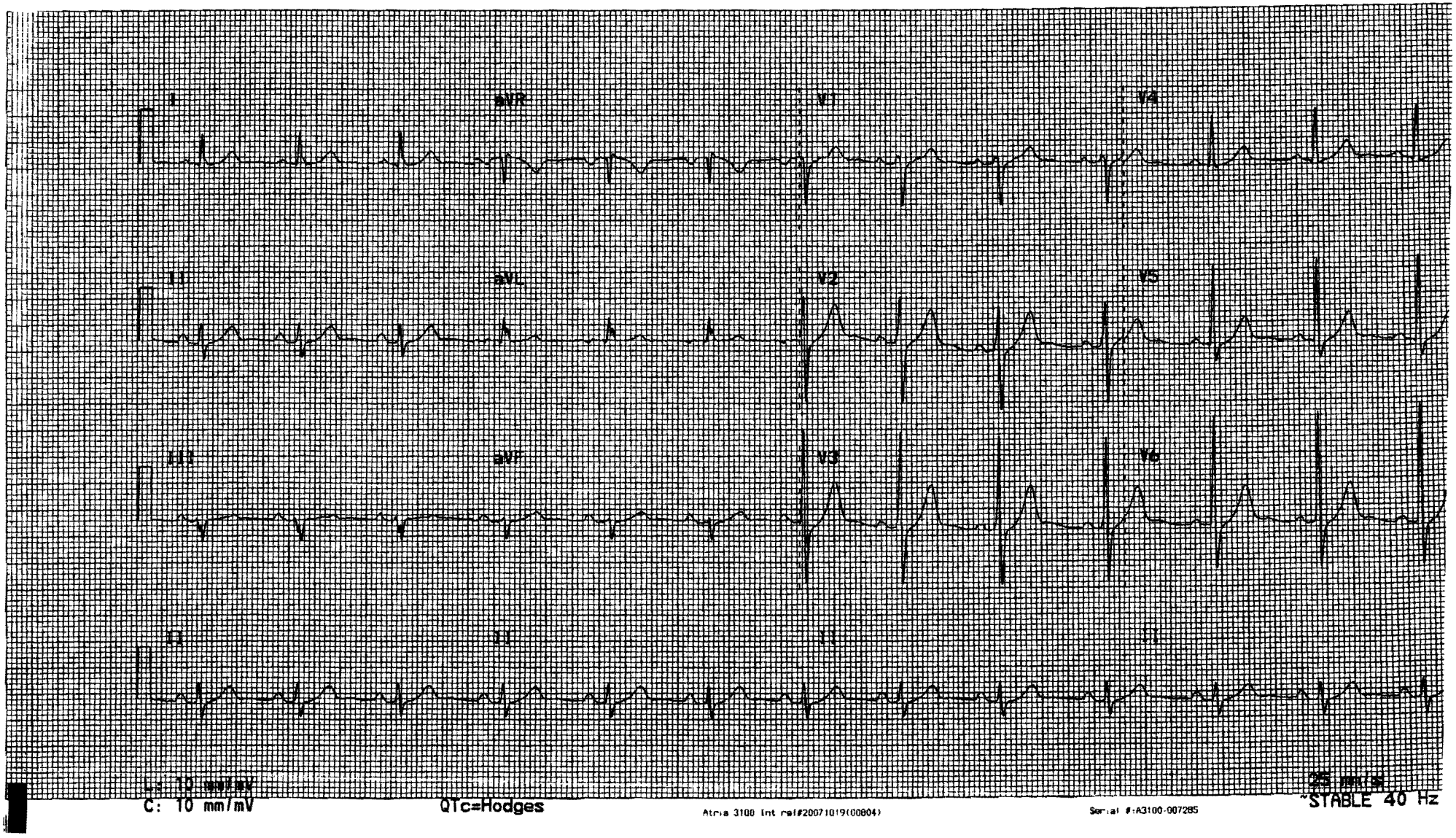
12/26/2013 18:24:36 Sinus rhythm

Normal ECG

* Unconfirmed Analysis *

D.O.B.: [redacted]	
MALE	
Meds:	
Class:	
Dr: Miranda	
Tech: Mp	

Vent. Rate:	76 bpm
RR Interval:	784 ms
PR Interval:	148 ms
QRS Duration:	104 ms
QT Interval:	372 ms
QTc Interval:	400 ms
QT Dispersion:	20 ms
P-R-T AXIS:	69° -13° 46°



Welch Allyn CardioPerfect Workstation

Normal Spirometry Report - [redacted] 11/21/2013 10:54:35 PM Page 1

Patient Information:

ID: 1
Name: [redacted]
DOB: [redacted]
Height: [redacted] Weight: [redacted]
Gender: Male
Race: [redacted]
Packs / Day: ------- Smoke Years: -------
Cooperation: ----------

Test Information:

Pre Time: 11:08 PM
Post time: -
Norm Reference: NHANESIII 1999

Quality Messages:

Pre: 3-Blow out longer, 2-Blow out longer, 1-Blow out longer,

Test Results:

Lung age: 40 years
FEV1%Pred: 99 %
FEV1%: 81%
Improvement: -

FEV1 Pre / Post Var: 16 ml (0 %) / -
FVC Pre / Post Var: 50 ml (1 %) / -
ATS Reproducibility:
Pre: NOT MET (< 3 acceptable efforts)
Post: -

Test interpretation: UNCONFIRMED REPORT

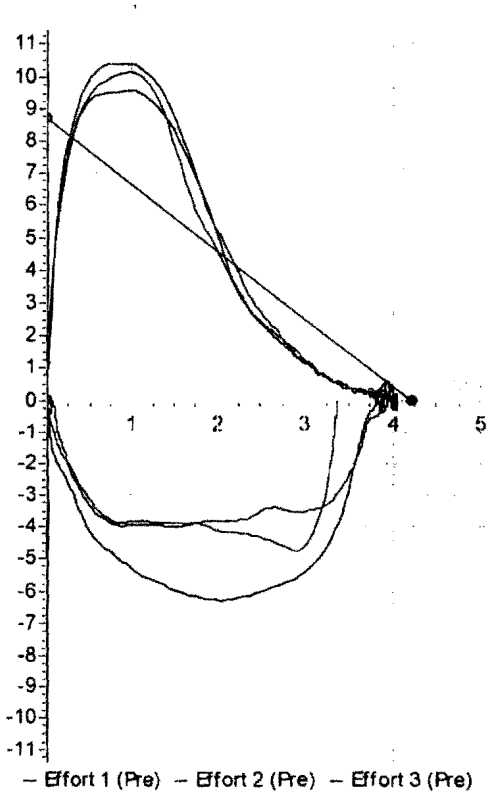
Pre: FVC= 4.05L FEV1= 3.28L
FEV1%= 80.9% 3.28/4.05 FEV1/FVC
(11/21/2013 11:09:04 PM), Within normal limits

Test Comment:

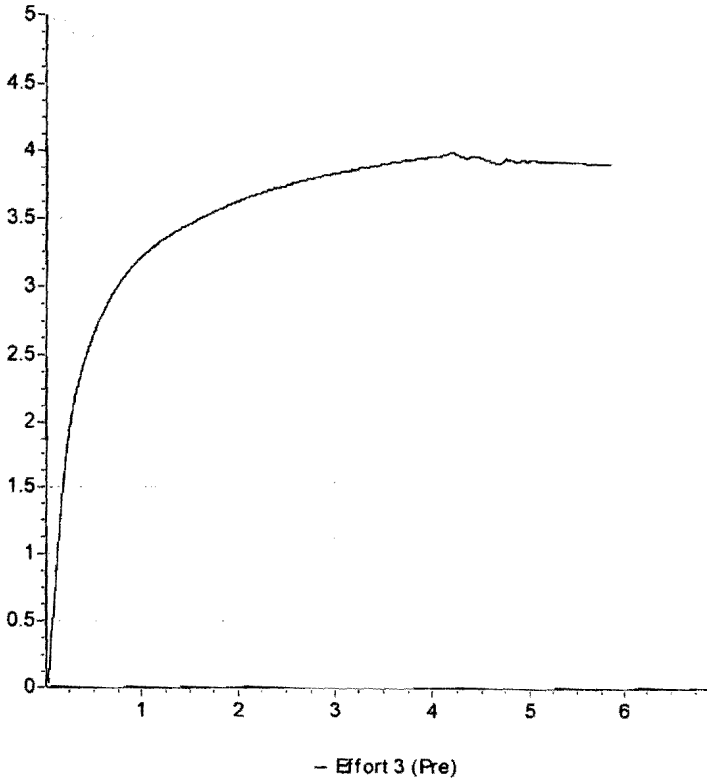
by provider
with results

Parameter	Units	Pred	Best Effort 3. Pre	%Pred	%Change	All Efforts 3. Pre	2. Pre	1. Pre
FVC	(L)	4.22	4.05	96	-	4.05	4.00	3.96
FEV1	(L)	3.31	3.28	99	-	3.28	3.29	3.31
FEV1/FVC	(%)	79	81	102	-	81	82	83
FEV6	(L)	4.03	4.05	100	-	4.05	4.00	3.96
PEF	(L/s)	8.68	9.56	110	-	9.56	10.16	10.41
FEF25-75	(L/s)	3.23	3.21	99	-	3.21	3.30	3.69

(*) Means below LLN



– Effort 1 (Pre) – Effort 2 (Pre) – Effort 3 (Pre)



– Effort 3 (Pre)

Reviewed By: UNCONFIRMED INTERPRETATION - MD SHOULD REVIEW
Last Calibration: 11/21/2013 11:06:09 PM Device Info: 1.6.2.1105

Metabolic Rate and Exercise Testing

What is a resting metabolic rate?

Your resting metabolic rate is the amount of calories burned per day needed to perform your basic body functions when you are at rest.

How do you calculate a resting metabolic rate?

The metabolic analyzer measures the amount of oxygen that you breathe in and the amount of oxygen that you breathe out. The difference is the amount of oxygen used for the production of energy by your body. Based on the formula that for every calorie that you burn you use 208.06 ml of oxygen the metabolic analyzer can then calculate the total number of calories burned per unit time.

So why is measuring my metabolic rate useful?

If you eat more calories than you burn then you will likely gain weight. Knowing your unique metabolic rate zones is crucial to help you understand how much you need to eat or exercise in order to maintain or lose weight.

If we find that you have an abnormally slow metabolic rate it may be as a result of an undiagnosed medical illness or disease such as hypothyroidism or low cortisol. You will not be able to lose weight until the illness or disease is first treated.

Measuring and monitoring your metabolic rate can be a useful adjunct in determining your nutritional status as you heal from an illness or injury.

Furthermore, periodic readings of your metabolic rate can be helpful in monitoring your progress and maintaining your motivation in a weight loss program.

I struggle with weight loss and I already know that I have a slow metabolism?

Most people who are overweight believe that they struggle to lose weight because they have a slow metabolism. The truth is that statistically, patients who are overweight or obese have average or above average metabolic rates.

What leads to a decrease of metabolic rate?

- Decreasing your daily caloric intake particularly to less than 1,000 calories per day.
- Increasing age.
- Decreased muscle mass.
- Sedentary lifestyle.
- Medical illness or disease.
- Certain medications.

MetaCheck
Metabolic Rate Analysis System

target™ CALORIC Zones

These are ***Your*** measured daily caloric zones found from ***Your*** Metabolic Rate Test.

Your **Energy Balance** Results

There is one basic truth to weight loss: You need to burn more than you eat. Target Metabolic Zones tell you exactly how to do that. The following results of your test show you precisely how many calories your body actually burns, and calculates how many calories you should eat to lose or maintain your weight.

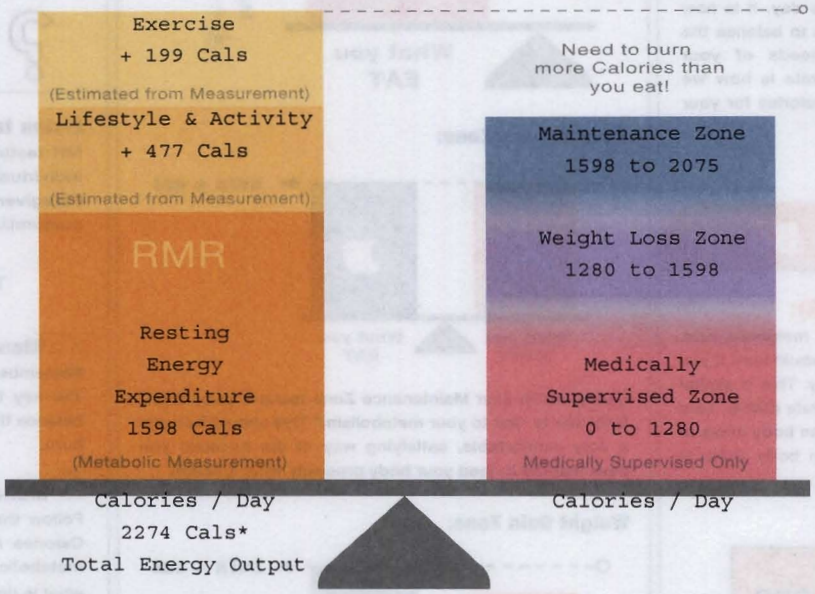
What you burn

Exercise
This is an estimate of the number of Calories you would burn with 30 minutes at a moderate exercise level.

Lifestyle & Activity
This is the number of calories you burn performing your daily activities...working, playing, eating, etc. Activity accounts for a significant portion of the calories you burn each day.

Resting Metabolic Rate
Today we measured your Metabolic Rate. This is the number of Calories your body burns everyday at rest.

How much you eat



*Total = RMR + Lifestyle + Exercise

Maintenance Zone
Once you reach your goal weight, this is how many calories your body needs to maintain your weight.

Weight Loss Zone
Comfortable weight loss comes from eating slightly less Calories than your body needs. By eating healthy foods throughout the day you should not feel hungry.

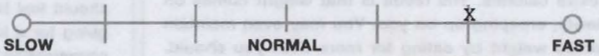
Medically Supervised Zone
Very low calorie diets should only be done under medical supervision. Supervision is required to ensure adequate nutrition, and to monitor and treat the potential slowing of metabolic rate.

Time to reach your goal weight.... 9 weeks
If you add exercise..... 7 weeks

*Based on measured metabolic rate, assumes a moderate level for 30 minutes a day

How does your metabolism compare? Compared to a typical person of similar sex, age, height and weight, your metabolic rate is:

FAST (+21%)



FAST Metabolism: People with "FAST" metabolic rates burn MORE calories than normal. CAUTION: If you just recently exercised, ate a large meal, or were not in a restful state during the test, you may want to repeat the test (ask about correct test preparation).

SLOW Metabolism: People with "SLOW" metabolic rates burn FEWER calories than normal. CAUTION: If you think you may not have sealed your nose or mouth during the test, you should repeat the test. You want to ensure your measured Caloric Zones are correct.

note: NORMAL is considered to be +/- 10% the predicted value.

Coach's Interpretation

Target daily calories:

Next Test Date:

Exercise Goal:

Age:	41
Gender:	Female
Height:	165 cm (5 ft 5 in)
Weight:	58.1 kg (128 lbs)
Goal Wt:	52.2 kg (115 lbs)
BMI:	21.2
RER:	BMI:
Test Type:	RMR
Test ID:	2
SN:	14324

Name: [redacted]
Date: January 03, 2014 02:29 pm
Coach: Melissa Roberts

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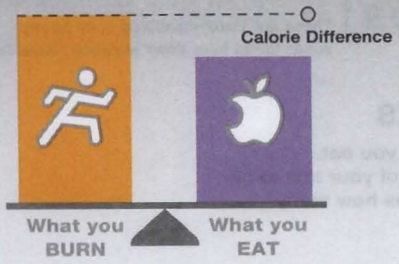
Introduction - Energy Balance

One thing holds true in weight management and that is Energy Balance. Simply put, if you burn more energy than your body absorbs, you will lose weight. When food is absorbed into your body it must either be burned as energy or stored as fat. Knowing your metabolic rate helps you to know how to balance what you eat with what you burn.



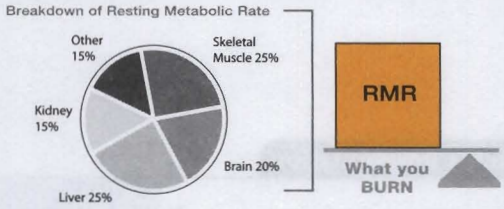
Energy in the Body

Calories is how we measure the energy in the food we eat and the energy our body uses. Your metabolic rate is how many Calories your body burns in a day. It is how fast your body burns energy. The trick is to balance the Calories you eat with the energy needs of your Metabolism. Measuring your metabolic rate is how we determine what is the right number of Calories for your body - for your metabolism.

What you Burn

Resting Metabolic Rate (RMR):

Today we measured your unique resting metabolic rate. This is the number of Calories your body would burn if you did nothing more than sit in a chair all day. This is similar to what is known as your *Basal Metabolic Rate* (BMR). Your resting metabolic rate is related to your lean body mass or the fat-free part of your body. Your lean body mass is made up of muscle and internal organs.

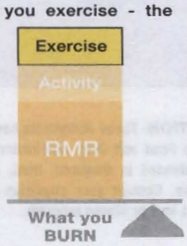


Activity & Lifestyle:

When you move your body burns energy. The more you move the more energy you burn. Your activity during the day is the biggest part of your body's energy output that you have control over. Daily Activity will generally account for burning more Calories than will exercise. Even the simplest activities can double the rate at which your body burns energy. Whether doing household chores, playing with your kids, or taking the stairs instead of the elevator, simple activities are the key to tipping the scales of energy balance in your favor.

Exercise:

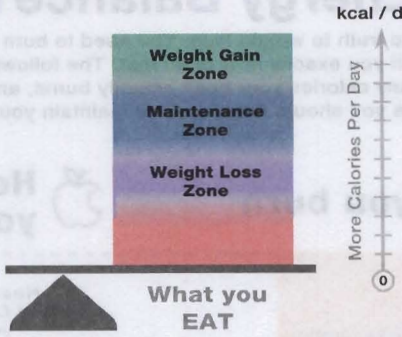
Many people are surprised by how few calories are burned when they exercise. Don't make the mistake of rewarding yourself with food when you exercise - the calories you burn may only add up to ½ of a candy bar. However, exercise is important to increase your lean body mass (*i.e. muscles - the Calorie burning part of your body*). Proper exercise will provide your body with signals to help you lose weight and will even help control your appetite.



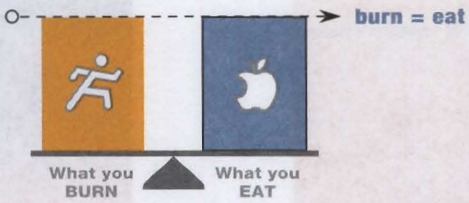
What you Eat

The number of calories you eat in a day determines whether you will maintain, gain, or lose weight. To help you understand how your own metabolism affects this, we have developed Target Zones.

These Zones are calculated using your individual Metabolic Rate Test. They pinpoint the precise number of calories your body needs each day to lose or maintain weight effectively.

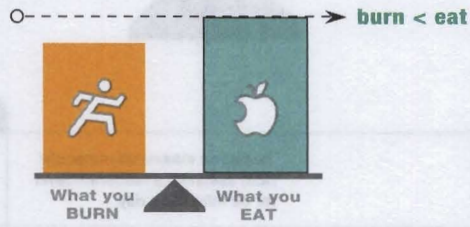


Maintenance Zone:



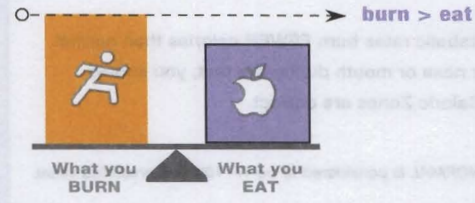
Eating within your Maintenance Zone teaches you what it feels like to "eat to your metabolism." This should become a very comfortable, satisfying way of life because you have learned to feed your body precisely what it needs.

Weight Gain Zone:



The Weight Gain Zone can be deceiving. As you eat too much, your metabolism works extra hard to burn off those extra calories. The result is that weight comes on very slowly, creeping up on you. You may even maintain this excess weight by eating far more than you should. When you attempt to lose weight, you may need to make an unusually large reduction in calories to cross through your Maintenance Zone to reach your Weight Loss Zone.

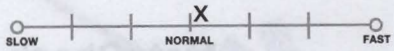
Weight Loss Zone:



The Weight Loss Zone indicates the maximum number of calories you can eat and still lose weight. In this Zone, your body will be healthy, happy, and satisfied. Imagine the success you will have when dieting feels this good! Discuss your Target Calories with your caregiver.

Comparison:

Are you Fast or Slow?



Many studies have been done to determine what is an "average" or "normal" metabolism. Your metabolic rate has been compared to what is "normal" for your age, height, weight, and sex. We often hear people blame their "slow metabolism" for their weight gain. But really most people do not have a slow metabolic rate.

Your measured metabolic rate is shown compared to average. If you have a "FAST" metabolic rate your body burns MORE calories than average - which is good. If you have a "SLOW" metabolic rate your body burns FEWER calories than average.

What to Do

Listen to Your Physician / Caregiver

MR testing and Metabolic Zones are all about individualizing your weight loss plan. Your caregiver knows you well and can further customize your plan to help you succeed.

Target Daily Calories: ▷

Manage Your Energy Balance

Remember it is all about balance - energy balance. The key to successful weight management is to balance the Calories you eat with the Calories you burn.

Manage your Calorie Intake

Follow the nutritional guidelines and Target Daily Calories recommended by your caregiver. Your metabolic rate test provides information about what is right for you! Use this to your advantage.

Increase Your Activity

This is the best way to affect what you burn. Simple things add up. As we get older our decrease in activity is the largest loss in what we burn.

Light & simple exercise gets oxygen to your muscles and gives your body signals that help you burn fat. There is a simple rule of thumb to know if your exercise will be effective for weight loss - You should feel like you are working hard but can keep going for a long while. Be sure you can carry on a conversation comfortably throughout your workout.

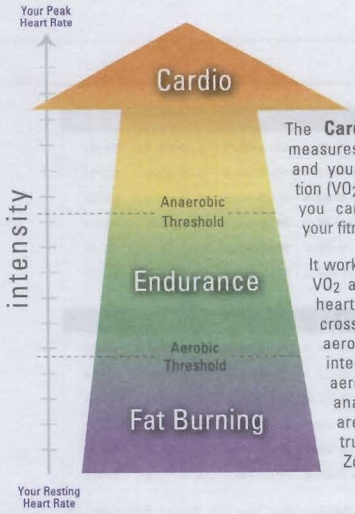
Maintain Your Lean Body Mass

Follow carefully the nutrition guidelines of your caregiver. Insufficient protein in your diet will cause a decrease in lean body mass. As you lose weight, you do not want to lose the part that helps you burn energy.

Exercise that helps build muscle will increase your lean body mass. Any activity helps - walking is a good start. Eventually add exercises that build muscle strength. Discuss with your caregiver ways you can increase your muscle strength.

CardioCoach™
FITNESS ASSESSMENT

VO_2 Test Results



The **CardioCoach** system measures your heart rate and your oxygen consumption (VO_2). The more oxygen you can use the greater your fitness level!

It works by analyzing your VO_2 and finding at what heart rate your body crosses its threshold of aerobic and anaerobic intensity. Once your aerobic threshold and anaerobic threshold are measured, your true Target Workout Zones can be found.

CALORIES BURNED

There is a direct relationship between oxygen consumption and calories burned. Your VO_2 Test measures how many calories you burn when you exercise.

HEART RATE	EXERCISE ZONE	CALORIES PER HOUR
170		566
160		524
150	Cardio Training (Anaerobic)	483
140		442
130	Anaerobic Threshold	401
120		348
110		291
100		233
90	Aerobic Threshold	160
80	Fat-Burning (Aerobic)	65

Heart Rate Zones Calories

*This table shows how many calories per hour your body burns when exercising at various intensity levels. The heart rate at which your anaerobic and aerobic thresholds were detected is also shown.

Target Workout Zones

The CardioCoach has analyzed your VO_2 Test and has created the following workout zones based on your results. Discuss with your trainer a workout strategy based on your goals and your Target Workout Intensity Zones.

Low Zone	Moderate Zone	High Zone	Peak Zone
HR: 80-94	HR: 94-127	HR: 127-159	HR: 159-170
C/Hr: 65-199	C/Hr: 199-404	C/Hr: 404-526	C/Hr: 526-566
Low	Moderate	High	Peak

*HR = Heart Rate; C/Hr = kcals per hour

Recovery Heart Rate

Recovery

	Peak	1 Minute	2 Minute
Heart Rate	170	131 (44%)	113 (64%)

Cardio Strength

Cardio Strength

	Start	AeT	AT	Peak
VO2 (ml O2/kg/min)	3.9	11.9	23.2	33.8
Heart Rate (bpm)	80	94	127	170
Calories Per Hour	65	199	404	566
Fitness Level	Excellent			

AeT = Aerobic Threshold, AT = Anaerobic Threshold

Fitness Level

Note fitness level is based on a VO2 Max.
Refer to fitness level tables on back side of page.

Fitness Level

Age	VERY LOW	LOW	FAIR	GOOD	EXCELLENT	SUPERIOR
40-49	<21.0	21.0-24.4	24.5-28.9	29.0-32.8	32.9-36.9*	>36.9

Coach's Interpretation

Your target heart rate

Recommend testing again by:

Stats

Stats

Age:	41
Gender:	Female
Weight:	58.1 kg (128 lbs)
Height:	165 cm (5 ft 5 in)
BMI:	21.2
Test Type:	Treadmill
Test ID:	3
SN:	14324

Name: [redacted]
Date: January 03, 2014 03:15 pm
Coach: Melissa Roberts

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FREQUENTLY ASKED QUESTIONS

What is VO2 Anyway?

VO_2 simply stands for Volume of Oxygen. The CardioCoach measures the volume of oxygen your body consumed at the various intensity levels during your test. The higher the workload you perform, the more oxygen your body requires to metabolize the energy needed. Since there is a direct relationship between oxygen consumption (VO_2) and Calories burned, the CardioCoach can also determine how many Calories your body is burning at each intensity level.

Aerobic Threshold (AeT)?

At low intensity activities your heart and lungs can easily supply all of the oxygen your body demands. The intensity level beyond which your body cannot provide all the oxygen needed is your Aerobic Threshold. Above this level anaerobic energy pathways start to operate.

The greater your VO_2 at your Aerobic Threshold, the greater your quality of life. The more you can move - the more you can do!

Anaerobic Threshold (AT)?

At high levels of intensity your body does not have sufficient oxygen to meet energy demands. Your body then uses anaerobic (without oxygen) energy sources which produce lactic acid. When you exercise above your anaerobic threshold your breathing will increase rapidly. It will be difficult to maintain this intensity level for a long period of time.

FITNESS LEVEL RESULTS

The maximum rate of oxygen uptake (VO_2) is called "VO_2 Max". VO_2 Max is the Gold Standard method to measure fitness. Bottom line: a higher max = a higher ability to intensely exercise. For example, Lance Armstrong has a VO_2 Max of 83.8 ml/min/kg. To achieve a high VO_2 MAX, a person must have a fit heart and lungs and significant lean muscle mass that is well conditioned.

The CardioCoach test results show your "Peak" or Maximum Measured VO_2. If you performed to your maximum effort level then your Maximum Measured VO_2 is your VO_2 Max - the maximum amount of oxygen your body can consume per minute.

Fortunately, VO_2 Max has been well studied and we can compare your results to published values. If you pushed yourself near your maximum level, you can use the tables to rate your level of fitness.

MALE - VO_2 MAX Fitness Assessment Criteria: ($mlO_2/kg/min$)

AGE	VERY POOR	POOR	FAIR	GOOD	EXCELLENT	SUPERIOR
13-19	0-34.9	35.0-38.3	38.4-45.1	45.2-50.9	51.0-55.9	56.0+
20-29	0-32.9	33.0-36.4	36.5-42.4	42.5-46.4	46.5-52.4	52.5+
30-39	0-31.4	31.5-35.4	35.5-40.9	41.0-44.9	45.0-49.4	49.5+
40-49	0-30.2	30.2-33.5	33.6-38.9	39.0-43.7	43.8-48.0	48.1+
50-59	0-26.0	26.1-30.9	31.0-35.7	35.8-40.9	41.0-45.3	45.4+
60+	0-20.4	20.5-26.0	26.1-32.2	32.3-36.4	36.5-44.2	44.3+

FEMALE - VO_2 MAX Fitness Assessment Criteria: ($mlO_2/kg/min$)

AGE	VERY POOR	POOR	FAIR	GOOD	EXCELLENT	SUPERIOR
13-19	0-24.9	25.0-30.9	31.0-34.9	35.0-38.9	39.0-41.9	42.0+
20-29	0-23.5	23.6-28.9	29.0-32.9	33.0-36.9	37.0-41.0	41.1+
30-39	0-22.7	22.8-26.9	27.0-31.4	31.5-35.6	35.7-40.0	40.1+
40-49	0-20.9	21.0-24.4	24.5-28.9	29.0-32.8	32.9-36.9	37.0+
50-59	0-20.1	20.2-22.7	22.8-26.9	27.0-31.4	31.5-35.7	35.8+
60+	0-17.4	17.5-20.1	20.2-24.4	24.5-30.2	30.3-31.4	31.5+

VO_2 MAX Tables - Data from Cooper, K. The Aerobics Way. New York, Bantam Books, Inc. 1982.

UNDERSTANDING YOUR WORKOUT ZONES

As you increased the intensity (workload) during your exercise test, your body responded differently at the various levels of exercise. Your body started out using aerobic energy sources and gradually converted over to anaerobic energy sources. These are different physiological "Zones" of your metabolism and are mostly driven by your heart and lung's ability to provide sufficient oxygen to your body.

The CardioCoach finds these physiological zones and uses your heart rate as a landmark as to where these critical metabolic changes occur. The CardioCoach simplifies the results as your Target Heart Rate Workout Zones.

Low Intensity Zone

In this zone your body is using completely aerobic energy sources. This is best for fat burning. Your heart and lungs easily provide the needed oxygen for your activity.

Fat Burning

Moderate Intensity Zone

As you increase intensity in this zone your body increases the amount of anaerobic energy needed. Your heart and lungs are more challenged to meet the oxygen demands. you can maintain this level for a long time before becoming fatigued.

Endurance

High Intensity Zone

In this zone your body is heavily relying on anaerobic energy sources. You will rapidly build an oxygen debt. You will not be able to maintain this level of exertion for long periods of time.

Cardio Training

Peak Intensity Zone

This is your highest intensity level - based on your peak heart rate measured during the test. Effort in this zone will be of a very short duration. For example, a sprint at the end of a run.

Cardio Training

Note: The upper end of the peak and high intensity zones are based off your peak results during the test. If a "sub-maximal" test was performed, the upper end of your High & Peak zones will be lower.

WHAT TO DO?

If you are working with a trainer or fitness coach, listen to them. Follow their advice without looking for shortcuts. This test provides them with valuable insight into your fitness requirements.

What Are Your Goals?

Lose Weight / Burn Fat

Exercise plays an important role in reducing body fat. Research continues to show that long-duration, low-intensity exercise is best for burning fat. A minimum of 30 minutes 3 times per week is needed to see results.

Even though higher intensity workouts burn more calories per minute, they can be counter productive for weight loss.

Increase Endurance

Your Anaerobic Threshold (AT) represents the maximum intensity level that you can maintain for an extended period of time. Exercising at your Anaerobic Threshold Heart Rate will increase your performance in endurance activities.

Cardio Training

Short 10 minute intervals of exercising in your High and Peak Intensity zones will aid in improving your cardiovascular fitness.

Coach's Interpretation: Your Target Zones

Workout	Target Heart Rate	Duration (Minutes)	Times/ Week	Notes
Cardio				
Endurance				
Low Intensity Fat Burn				

Workout Plan

Workout	Zone/Workout	Duration (Minutes)	Notes
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			
Sunday			

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Preventive Health Resource

Charles H. Miranda, MD, FACP
Diplomate, American Board of Internal Medicine

Table of Contents

To my patients:

The goal in developing this preventive health resource is to provide you with information that you can then use to make an informed decision about what is best for you. That is the foundation of personalized care. Many of the medical problems that affect us can be prevented. There are four fundamental keys to a healthy lifestyle which include nutrition, exercise, adequate sleep and healthy relationships. In addition preventing infectious disease through the appropriate use of vaccinations and preventing cancers through reducing risk factors and maintaining screening tests add further health protection. Please read this resource with your individual health and those of your loved ones in mind. I welcome your comments and suggestions and consider it a privilege to be your doctor.

Best of health,

Charles H. Miranda, MD, FACP

Exercise

What are the health benefits of regular physical activity?

The benefits of regular physical activity are numerous and have been documented in scientific studies. Some of the benefits can be seen within a few weeks to months while others are long term benefits.

There is strong evidence that physical activity lowers the risk of early death, coronary heart disease, stroke, high blood pressure, high cholesterol, diabetes, colon cancer, breast cancer, hip fracture, lung cancer, and endometrial cancer. In addition regular physical activity improves cardiorespiratory fitness, muscle fitness, bone density, arthritis, and cognitive function. **Exercise helps you lose weight, improves your mood, reduces depression and anxiety, helps you sleep better, improves your sex life and increases your chance of living longer!** There is no magic pill that can do all of that.

What types of activities should be part of a regular program of exercise?

The three components to any exercise program include aerobic activity, strengthening activities and flexibility/balancing activities.

Aerobic activities are exercises that increase oxygen use to improve heart and lung function. These activities make your heart beat more rapidly to meet the increased oxygen demands of your body's movement. Running, brisk walking, bicycling, dancing, and swimming are all examples of aerobic activities.

Strengthening activities help build muscle and prevent muscle loss. One of the most efficient ways to burn more calories and eventually lose weight is by increasing your muscle mass. Muscle strengthening exercises also help increase bone strength reducing your risk of falls and bone fractures. Weight training, working with resistance bands, doing calisthenics (such as push-ups, pull ups, and sit ups), carrying heavy loads, heavy gardening, and yoga are some examples of strengthening activities.

Flexibility and balancing activities reduce stiffness, tension, pain and fatigue in your muscles, tendons and ligaments. This will improve posture and reduce your risk of injuries and falls. Tai chi, stretching, pilates and yoga are some examples of flexibility and balancing activities.

Nutrition

Why do I gain weight?

Your body's cells convert the food that you eat with the oxygen that you breathe to make energy. When you eat more calories than you burn, your body will store those extra calories as fat and you will gain weight. For every 3500 calories that you do not burn you will gain about 1 pound of fat.

How can I lose weight?

If you eat fewer calories than your body uses then you will lose weight. If your body needs more energy than the calories that you have provided then your body's cells will start to burn stored fat. You can lose weight by eating less, moving more or both. But be careful not to starve yourself because when you don't eat enough calories your body may also start to breakdown muscle and a lack of muscle will make it harder for you to lose weight. Muscle burns calories more efficiently than any other tissues in the body. So the best way to lose weight is to make sure that your caloric intake is adequate to support muscle growth through strength training and then do aerobic exercise to burn the extra fat that you have stored.

What is my healthy weight?

This is a complex question and involves many factors. Your body weight is not only influenced by how much you eat and how much you exercise but also by how your genetics influences your metabolism. Your current medications or medical problems can also influence your appetite, your ability to exercise and your metabolism, thereby affecting your body weight.

Sleep

How much sleep is considered adequate?

Adults need at least 7-8 hours of sleep each night to be well rested. Recent studies have shown that the average adult now sleeps for less than 7 hours a night. Adolescents need at least 9-10 hours of sleep each night.

What are the different stages of sleep?

Sleep is divided into non-REM and REM sleep. Non-REM sleep is made up of three stages. Sleep stages cycle and repeat continuously while you are sleep.

- Stage 1- Light sleep, easily awakened, muscles relax with twitches, eye movements are slow
- Stage 2- Eye movements stop, brain waves are slower with occasional rapid bursts. 50% of sleep is spent in this stage.
- Stage 3- Occurs mostly in the first half of the night soon after you fall asleep. This is considered deep sleep. Difficult to awaken. Brain waves are slow (Delta waves). Heart and respiratory rate are slow. Muscles are relaxed.
- REM- First occurs about 90 minutes after you fall asleep. Longer deeper periods occur during the second half of the night. Eyes move rapidly. Breathing, heart rate and blood pressure increase. This is the stage where dreams occur. Muscles are temporarily paralyzed.

What causes sleep?

The need to sleep is mediated by two substances. Adenosine builds up in your blood while you are awake and triggers sleep. Adenosine is then broken down while you sleep. Melatonin is produced in your brain and makes you naturally feel sleepy at night.

What happens to your health if you do not receive adequate sleep?

A lack of sleep can lead to a lack of focus, decreased attention, slower thinking, risk taking, and mood problems. Untreated sleep disorders can increase your risk of obesity, high blood pressure, diabetes, heart disease, stroke, and infections.

Why can a lack of sleep lead to heart disease and stroke?

A lack of sleep puts your body under stress which increases inflammation and triggers the release of stress hormones such as adrenaline, cortisol and others. This leads to an elevated heart rate and blood pressure and when combined with increased inflammation can cause changes in the blood vessels of your heart and brain.

Vitamins and Supplements

I am going to be non committal here because there is research to suggest that vitamins and supplements are helpful and there is research to support that it is not. So if you take vitamins and supplements and you feel that it benefits you and it does not harm you then please continue. If you don't take vitamins or supplements and you are healthy and have an adequate intake of fruits, vegetables and fish then keep up the good work. If however you are unsure where you stand or just curious then keep reading. This is a guideline or summary and is not meant to cover all the exhaustive amount of information that exists on this subjective. I have simplified this on purpose.

Why may vitamin supplements not be effective?

The vitamins in a multivitamin are likely not as effective as the vitamins in whole food where it is surrounded by other nutrients and is in its natural state not molecularly changed. It may be that all of these nutrients working together in their natural form are what really keeps us healthy.

In what circumstances may vitamin supplements be effective?

Multivitamin supplements may help fill a void in particular patients who because of age, illness or nutritional state may be deficient.

What are free radicals?

Each day our body's cells produce and are exposed to free radicals. Free radicals are unstable molecules that lead to oxidative stress. Many of the physical effects we call "aging" are believed to be the results of free radicals that affect tissues and organs such as skin, blood vessels, the heart and the brain. Free radicals however are important in fighting off certain infections. The goal is not to completely eradicate free radicals from the body but rather to return our body to a better balance.

What are antioxidants?

Antioxidants are our first defense against free radicals. Antioxidants are believed to stabilize free radicals. Our body naturally generates antioxidants. Certain foods like fruits and vegetables also contain antioxidants. Vitamin supplements can provide additional sources of antioxidants, but the role of vitamin supplements is limited because for each molecule of a vitamin only one free radical is neutralized. Furthermore the vitamins in a multivitamin are likely not as effective as the vitamins in whole food where it is surrounded by other nutrients. Therefore as we age it becomes difficult for our body's cells to keep up with all of the free radicals that are produced and therefore our cells and body age.

Industry is trying to find a product that will turn on our body's own antioxidant enzymes. There may come a time when it will be routine to measure your level of oxidative stress and if elevated to provide you with treatments to lower your levels.

Vaccines

There is so much to know about adult vaccines. The Advisory Committee for Immunization Practices recommendations changes annually as do the available vaccines. Below I have provided a synopsis of all of the routine adult vaccinations. The most common adult vaccines include: influenza (flu), pneumococcal (pneumonia) tetanus, diphtheria, and pertussis (whooping cough) (TdaP), and shingles. A summary of my recommendations for these vaccines follows. All adults should receive influenza (flu) vaccine every year. Patients over the age of 65 should receive one dose of pneumococcal (pneumonia) vaccine. All adults should receive one tetanus, diphtheria and pertussis (whooping cough) (Tdap) vaccine and then every 10 years obtain a tetanus and diphtheria (Td) booster. The shingles vaccine is available for adults over the age of 60 who wish to receive it. The shingles vaccine is only 50% effective and very expensive. Recently Medicare coverage has made access to some vaccines logistically more difficult. While influenza, pneumonia and hepatitis B fall under Medicare part B and can be administered in the office, shingles and Tdap are covered under Part D's prescription drug benefit and are administered at the pharmacy.

Influenza (Flu) Vaccine:

- **Who should receive a flu vaccine?** Vaccination against influenza (Flu) is recommended every year for **all adults**.
- When should I receive the flu vaccine? I recommend that vaccination be given in October in order to ensure that your immune response will last through March which is considered the end of the flu season.
- **How effective is the flu vaccine?** The effectiveness of an influenza vaccine depends on your individual immune response to the vaccine and whether research experts correctly predict the circulating strains of influenza for that season and incorporate those strains in the vaccine. Vaccine effectiveness will therefore vary year to year but on average it is 60% effective.
- **Why should I be vaccinated?** To protect yourself and those around you from a potentially life-threatening illness particularly if you are at high risk. Some protection is better than none. Some studies show that even if the vaccine does not prevent illness, it can reduce the severity.
- **Which flu vaccine is right for me?** There are several different types of influenza vaccine. Which one is right for you depend on your age and health conditions.
    - **Standard dose inactivated influenza vaccine** is considered the typical flu vaccine that you have received in the past. It covers three circulating stains of influenza. It is an intramuscular injection.
    - **High dose inactivated influenza vaccine** is intended for use in adults 65 years and older. The vaccine contains four times the typical amount of antigen and is thus intended to trigger a stronger immune response in older adults. This vaccine seems to be as safe as the standard dose vaccine. What we don't know is whether it is more effective in preventing influenza than the standard. The results of a CDC study comparing the two doses should be available in 2015. It is an intramuscular injection.

Cancer Screening

Cancer is a term used for diseases in which abnormal cells divide without control and are able to invade and affect the function of nearby tissues. Cancer cells can spread to other parts of the body through the lymph and blood systems. Cancer is not just one disease but many diseases.

In this section I have summarized the risk factors, protective factors, screening tests and diagnostic tests of the most common types of cancer. The goal of cancer screening is to reduce the number of patients who develop and die from cancer. Although some cancer screening tests have proven benefits that can help achieve these goals others do not.

Many patients believe that they are powerless when it comes to preventing cancer. Sometimes that is true but more often than not there are several ways that all patients can reduce their overall risk of developing cancer.

- Eat a healthy diet low in solid fats, high in fiber and high in servings of fruits and vegetables.
- Exercise routinely.
- Maintain a healthy weight.
- Do not smoke tobacco.
- Limit your consumption of alcohol.
- Avoid known cancer causing environmental exposures.
- Keep your cancer screenings up to date.

Breast Cancer

The breast is made up of lobes and ducts. The lobes are further divided into lobules. The lobules end in tiny bulbs that can produce milk. The lobes, lobules and bulbs are connected by ducts. Women in the U.S. develop breast cancer more than any type of cancer except for skin cancer. Breast cancer is second to lung cancer as a cause of cancer deaths in American women.

The following are risk factors for breast cancer:

- Early menstruation before the age of 11 increases the number of years that breast tissue is exposed to estrogen.
- Late menopause. The more years a woman menstruates, the longer her breast tissue is exposed to estrogen.
- Late pregnancy or never being pregnant. Because estrogen levels are lower during pregnancy, breast tissue is exposed to more estrogen in women who have never been pregnant or who become pregnant after the age of thirty-five.
- Women who take hormone replacement therapy.
- Exposure to radiation of the chest.
- Obesity.
- Alcohol use.
- Tobacco use.
- Women who have inherited changes in the BRCA 1 and BRCA 2 genes have an increased risk of breast cancer.
- Family history of a first degree relative (mother, daughter or sister) with breast cancer.

The following protective factors may reduce the risk of breast cancer:

- Exercise.
- Pregnancy before the age of 20.
- Breast feeding.
- Late onset of menstruation after the age of 14.
- Early menopause.
- The amount of estrogen produced can be reduced in women who have had their ovaries removed.
- The use of certain medications such as raloxifene or tamoxifen.
- Prophylactic breast removal.
- Diet low in fat and high in fruits and vegetables.

Screening for breast cancer:

- Mammogram: Women aged 40 and over should have an annual mammogram. Mammogram is limited in women with dense breast tissue.
- Clinical breast exam: Women aged 20-40 should have a clinical breast exam performed by their provider at least every three years. Women aged 40 and over should have a clinical breast exam every year.
- Breast self-examination should be discussed with patients.

- MRI screening should be performed in women with a primary relative with breast cancer, changes in the BRCA1 or BRCA2 genes or with dense breast tissue where mammography is limited.
- Ultrasound screening is recommended to be used in conjunction with mammography for the evaluation of women with dense breast tissue or with a palpable breast nodule.

Diagnosis for breast cancer:

The diagnosis of breast cancer is made by obtaining a biopsy of abnormal breast tissue that has been identified by clinical exam, mammography, ultrasound, MRI or ductogram. Biopsy can be performed by fine needle aspiration, core needle biopsy, vacuum assisted biopsy, or surgical open biopsy.