

# Clinical Experience Using LCHF: Case Examples and Tailoring

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# Disclosures

Book Authorship (no royalties): The New Atkins for a New You

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Consultant: Invoy Technologies

Equity: HEAL Diabetes & Medical Weight Loss Clinics  
(to increase access to LCHF teaching, medical care)

Equity: Adapt Your Life, Inc.

(to increase availability of keto-friendly products)

# LCHF Through the Years



**LETTER ON CORPULENCE**  
 Addressed to the Public  
 by WILLIAM BANTING  
 FOURTH EDITION  
 WITH PREFATORY REMARKS BY THE AUTHOR  
 AND COPIOUS INFORMATION FROM CORRESPONDENTS AND  
 ENTIRELY ORIGINAL EVIDENCE OF THE BENEFIT OF THE DIETARY  
 SYSTEM WHICH HE RECOMMENDED TO PUBLIC NOTICE  
 LONDON  
 PUBLISHED BY HARRISON, 19, PAUL'S WALL.  
 Bookseller to the Queen and H.B.E.L. the Prince of Wales  
 1869  
 PRICE ONE SHILLING

**THE PRINCIPLES AND PRACTICE OF MEDICINE**  
 DESIGNED FOR THE USE OF PRACTITIONERS AND STUDENTS OF MEDICINE  
 BY THE LATE SIR WILLIAM OSLER, BT, M.D., F.R.S.  
 THOMAS MCGRATH, M.D.  
 NINTH THOROUGHLY REVISED EDITION  
 NEW YORK AND LONDON  
 D. APPLETON AND COMPANY  
 1913

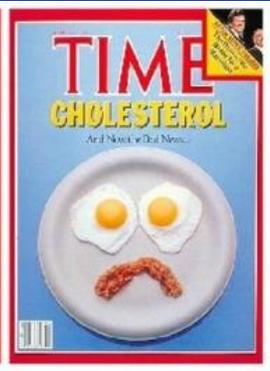
QUANTITY OF FOOD Required by a Normal Adult Male Weighing 60 Kilograms (140 lbs.)

Food	Quantity	Calories per Gram	Total Calories
Protein	100 g	4	400
Carbohydrate	250 g	4	1000
Fat	100 g	9	900
Water	2500 ml	0	0
Total			2300

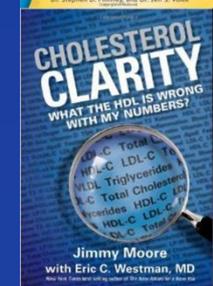
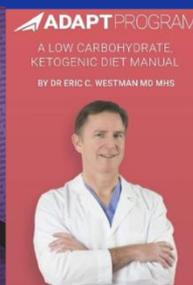
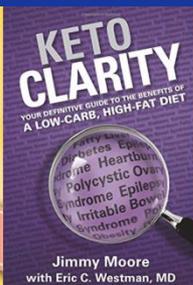
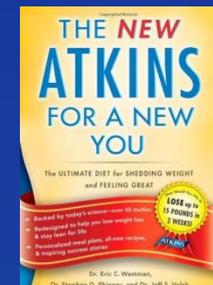
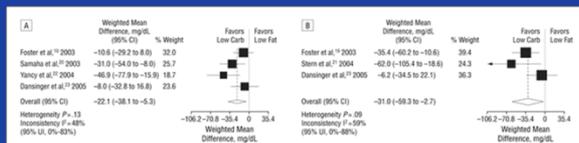
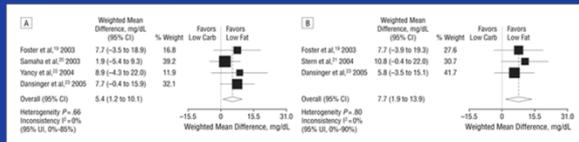
**STRICT DIET** (Foods without sugar) Meats, Poultry, Game, Fish, Oats, Potatoes, Cereals, Eggs, Butter, Olive Oil, Coffee, Tea and Cracked Corns

FOODS ARRANGED APPROXIMATELY ACCORDING TO CONTENT OF CARBOHYDRATES

	PER 100 g	PER 100 g	PER 100 g	PER 100 g
WATER	100	100	100	100
GRAIN	100	100	100	100
VEGETABLES	100	100	100	100
FRUITS	100	100	100	100
MEATS	100	100	100	100
EGGS	100	100	100	100
DAIRY	100	100	100	100



Low Carb Diets Lower Blood Triglyceride and Increase HDL-cholesterol



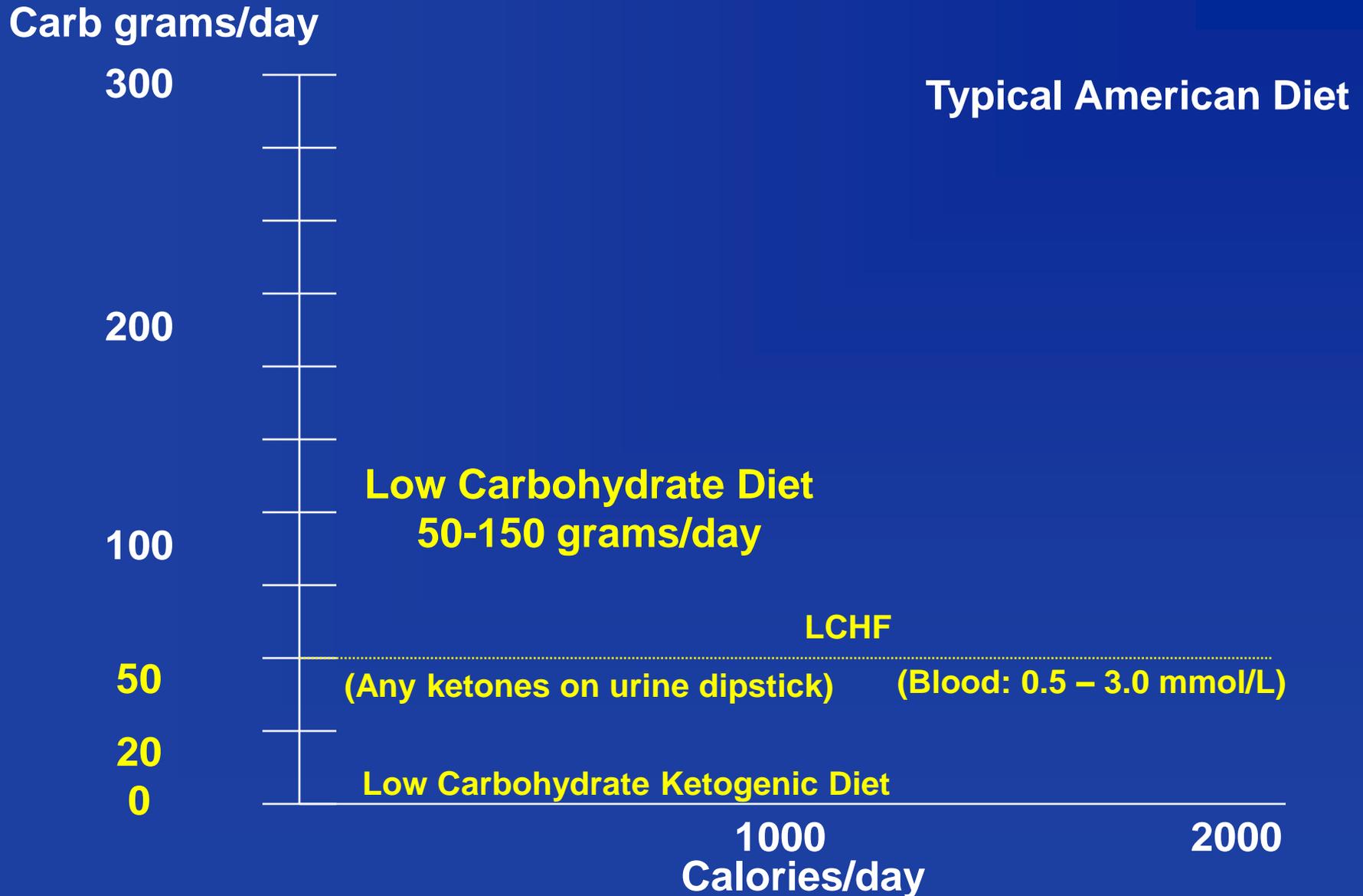
Youtube: Dr. Westman Diet  
 Dr Eric Westman – Duke University New Atkins Diet – DURATION: 38:49, 299,700 views

Nordmann et al. Arch Intern Med. 2006;166(3):285-293.

# Duke Lifestyle Medicine Clinic

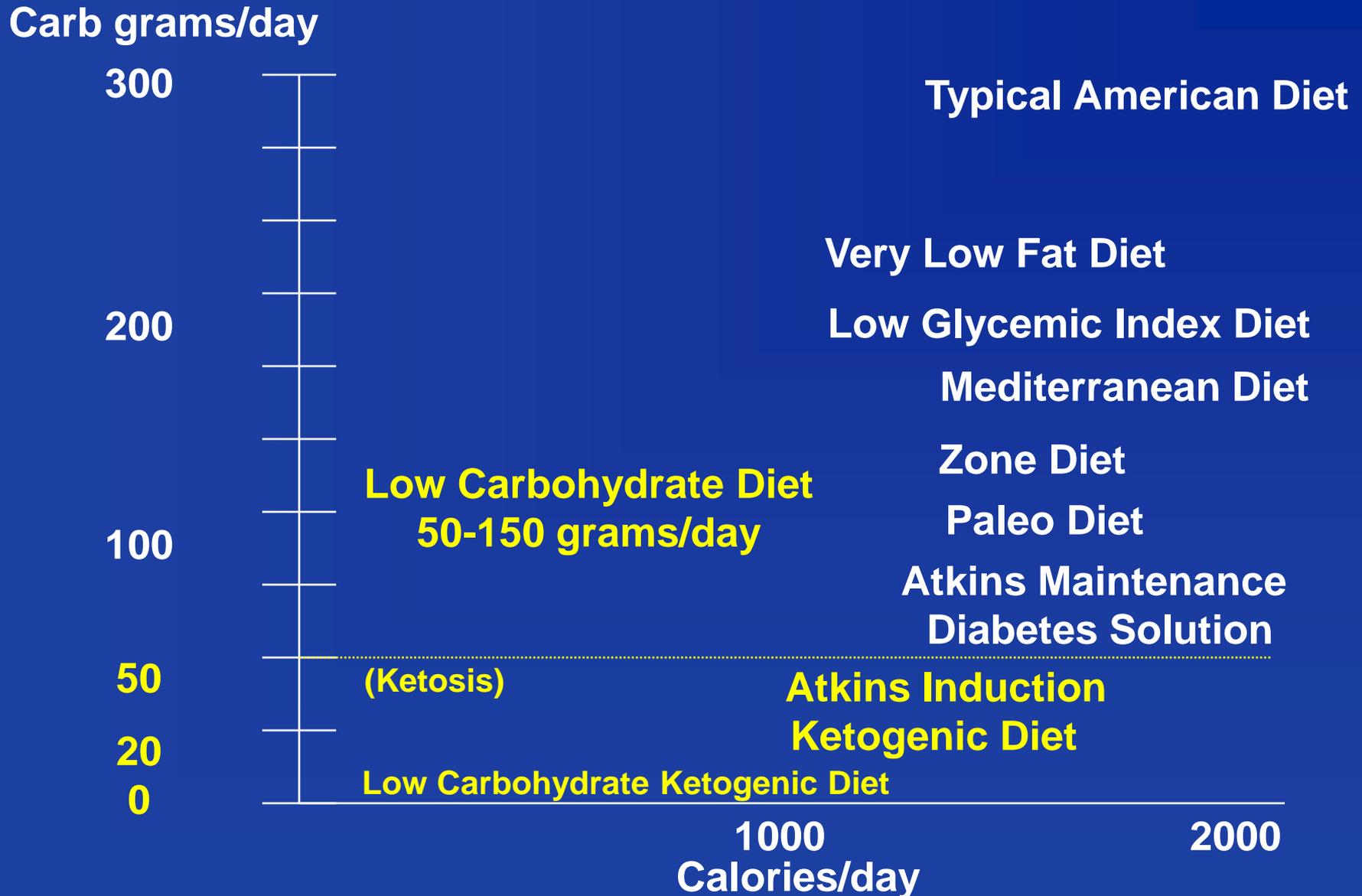
- Founded in 2006 after “Phase 3” clinical trials showing “safety and efficacy” for LCHF were done (as required for US FDA approval for a drug)
- University-based private practice using 2 rooms adjacent to an internal medicine teaching clinic
- Full-time staff: 1 obesity medicine specialist, 1 clinical nurse assistant
- Payment is within the private or public insurance (medicare/medicaid) system
- First-line treatment choice: LCHF

# Diets, Carbohydrates and Calories



Westman et al. Am J Clin Nutr 2007;86:276-84.

# Diets, Carbohydrates and Calories



# What Can People Eat on the LCHF Diet? ( $< 20$ total grams carbohydrate per day)

- Eggs, bacon  
(or Sugar-free yogurt with berry slices)
- Chicken Caesar salad  
(or Fast Food burger without the bun)
- Snack: olives, cheese stick  
(or pepperoni slices, chicarrones)
- Steak with bleu cheese, broccoli  
(or salmon with cream sauce)
- Drinks: water, sugar-free drinks, coffee w/cream

Individuals choose foods that they like from a list of low glycemic foods.

# Duke Lifestyle Medicine Clinic

- Volume: 4,023 patients, 28,008 clinic visits

## Patient Characteristics:

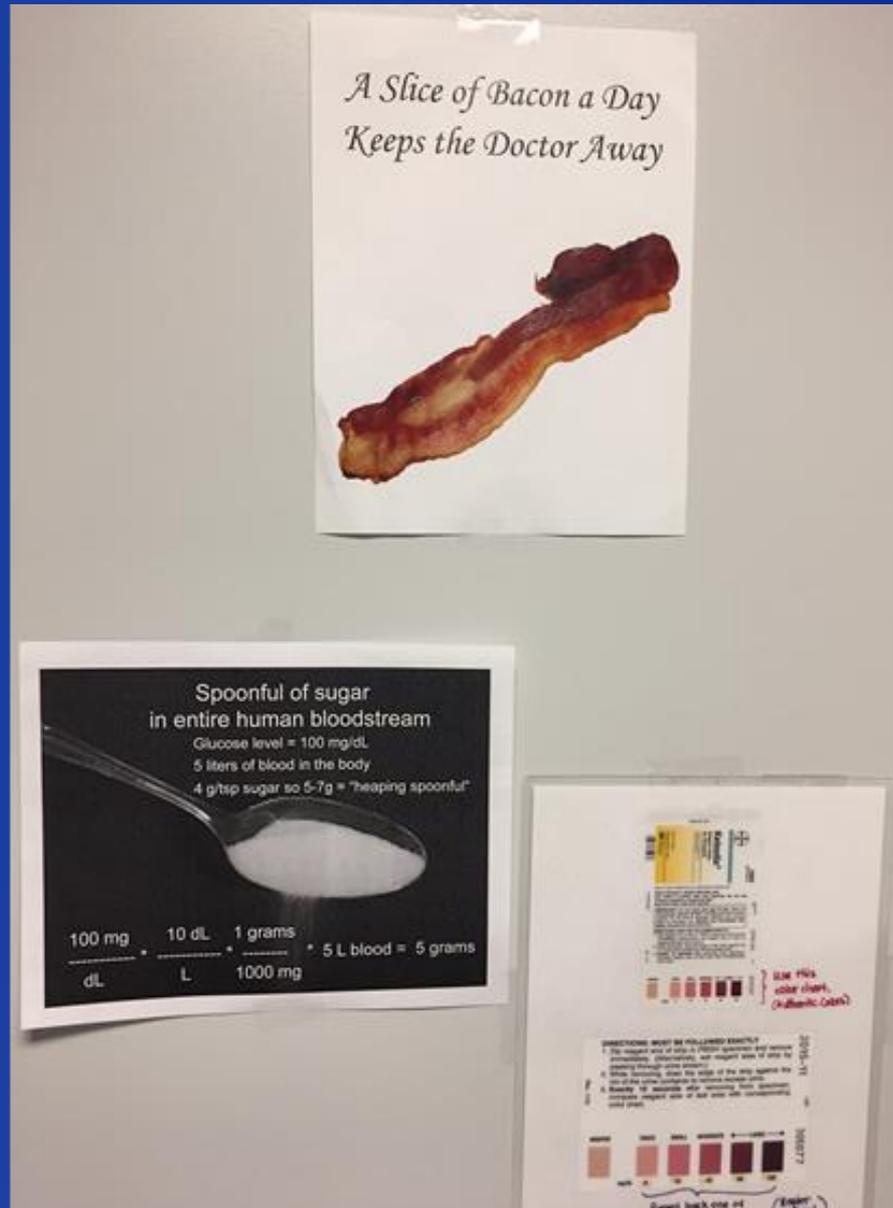
- Age, in years 50.5
- Gender 74% Female
- Race 53% Caucasian  
41% AA
- BMI, kg/m<sup>2</sup> 40.5
- Payor mix: about 50% private, 50% public insurance

QI, unpublished data

# Known as the “Clinic of Last Resort”

- Obesity, Type 1 and 2 Diabetes, Polycystic Ovarian Syndrome, Irritable Bowel Syndrome, Fatty Liver, GERD (heartburn)
- Heart Failure, pre-heart Transplant patients who have implanted left ventricular assist devices (LVAD)
- Lymphedema/Lipidema
- Post bariatric surgery weight regain
- Can work in conditions that require medications that cause weight gain: steroid pills/shots/nasal sprays, anti-depressants

# Duke Lifestyle Medicine Clinic 2017



# Example Return Clinic Day: 25 patients

Time	Patient	Age/Sex	Type	Notes	Status	Provider
8:30 AM		41 y.o. / M	OFFICE VISIT	flu 3months	Closed: Comp	Eric C Westman, MD
8:30 AM		65 y.o. / M	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
8:50 AM		35 y.o. / M	OFFICE VISIT	ret visit	Closed: Comp	Eric C Westman, MD
8:50 AM		55 y.o. / F	OFFICE VISIT	flu 2 wks	Closed: Comp	Eric C Westman, MD
9:10 AM		71 y.o. / M	OFFICE VISIT	follow up 6 weeks	Closed: Comp	Eric C Westman, MD
9:30 AM		34 y.o. / F	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
9:50 AM		73 y.o. / F	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
9:50 AM		65 y.o. / F	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
10:10 AM		55 y.o. / M	NEW PATIENT	wt loss/Dr Seylar referral	Sch	Eric C Westman, MD
10:10 AM		45 y.o. / F	OFFICE VISIT	RET	Closed: Comp	Eric C Westman, MD
10:30 AM		50 y.o. / F	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
10:30 AM		66 y.o. / F	OFFICE VISIT	flu 1 mos	Closed: Comp	Eric C Westman, MD
10:50 AM		46 y.o. / M	OFFICE VISIT	F/U	Closed: Comp	Eric C Westman, MD
11:10 AM		59 y.o. / M	OFFICE VISIT	flu 4 wks	Closed: Comp	Eric C Westman, MD
11:30 AM		55 y.o. / F	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
11:50 AM		46 y.o. / M	OFFICE VISIT	flu 3 wks	Closed: Comp	Eric C Westman, MD
1:10 PM		35 y.o. / F	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
1:10 PM		36 y.o. / F	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
1:30 PM		38 y.o. / F	OFFICE VISIT	2WEEKS	Closed: Comp	Eric C Westman, MD
1:50 PM		29 y.o. / M	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
2:10 PM		55 y.o. / F	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
2:30 PM		51 y.o. / M	OFFICE VISIT	flu	Sch	Eric C Westman, MD
2:30 PM		45 y.o. / M	OFFICE VISIT	flu 1mth	Sch	Eric C Westman, MD
2:50 PM		53 y.o. / F	OFFICE VISIT	ret visit	Sch	Eric C Westman, MD
3:10 PM		67 y.o. / M	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
3:30 PM		47 y.o. / F	OFFICE VISIT	flu 1 mos	Sch	Eric C Westman, MD
3:30 PM		48 y.o. / F	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
3:50 PM		53 y.o. / M	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
3:50 PM		54 y.o. / M	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD

# Clinic Flow Sheet

Date of Birth: \_\_\_\_\_

Date								
Wt. (lbs)	302.5	292	289 (0.4)	276 (4.2)	272 (4.2)	264 (9.2)	260 (9.2)	258 (9.2)
BP	132/74	134/85	140/86	130/87	140/85	133/81	130/81	136/83
Pulse	80	81	86	89	73	82	82	87
Wt. (kg)	137.2	132.6	131.1	125.3	123.5	120.0	118.2	117.3
BMI	50.4	48.7	48.2	46.0	45.4	44.1	43.4	43.1
Body Fat %	57.19	56.68	56.53	55.07	55.47	54.13	52.33	52.07
Fat Mass	78.4	75.1	74.1	69.0	67.2	64.9	61.8	61.0
Fat Free Mass	54.8	57.5	57.0	56.4	56.3	55.1	56.4	56.3
Total Body Water	43.0	42.1	41.7	41.3	41.2	40.3	41.3	41.2
Waist (mm) (IN)	49.5"	48.5	47"	44"	43.5"	42.5"	42.0"	42.0"
Education?	4/11/11		♀	♀	♀	♀	♀	♀
HG Min.	5.20 2.0							3.04 2.0
HG Max.								
HG Mean						AC 5.97		
esautin				+	+	+	+	
CTV		2015		+	+	+	+	
TCHDL		173					TCHDL	243
TRIG		101					TRIG	59
HDL		44					HDL	62
LDL		109					LDL	170

↑  
First Visit

# Clinic Flow Sheet

Date	302.5	292	289.04	276(462)	272(46)	264(902)	260(902)	258(902)
Wt. (lbs)	132.74	134.89	140.86	130.89	140.85	133.81	130.81	136.83
BP	80	81	86	89	73	82	82	87
Pulse	137.2	132.6	131.1	125.3	123.5	120.0	118.2	117.3
WL (kg)	50.4	48.7	48.2	46.0	45.4	44.1	43.4	43.1
BMI	57.19	56.68	56.57	55.07	55.47	54.13	52.33	52.07
Body Fat %	78.4	75.1	74.1	69.0	67.2	64.9	61.8	61.0
Fat Mass	58.8	57.5	57.0	56.4	56.3	55.1	56.4	56.3
Fat Free Mass	43.0	42.1	41.7	41.3	41.2	40.3	41.3	41.2
Total Body Water	49.5"	48.5	47"	44"	43.5"	42.5"	42.0"	42.0"
Waist (mm) (IN)	46mm		φ	φ	φ	φ	φ	φ
Education?	3020							3020
HC Min.								
HC Max.								
HC Mean						AC 5.97		
esautin				+	+	+	+	
CTV		2015		+	+	+	+	
TCHDL	173						TCHDL 243	
TRIG	101						TRIG 59	
HDL	44						HDL 62	
LDL	109						LDL 170	

↑ First Visit
 ↑ TEACHING CLASS

# Clinic Flow Sheet

Date of Birth: \_\_\_\_\_

Date	302.5	292	289 (0.4)	276 (4.2)	272 (4.2)	264 (9.2)	260 (9.2)	258 (9.2)
Wt. (lbs)	132.74	134.89	140.86	130.89	140.85	133.81	130.81	136.83
BP	80	81	86	89	73	82	82	87
Pulse	137.2	132.6	131.1	125.3	123.5	120.0	118.2	117.3
WL (kg)	50.4	48.7	48.2	46.0	45.4	44.1	43.4	43.1
BMI	57.19	56.68	56.57	55.07	55.47	54.13	52.33	52.07
Body Fat %	78.4	75.1	74.1	69.0	67.2	64.9	61.8	61.0
Fat Mass	58.8	57.5	57.0	56.4	56.3	55.1	56.4	56.3
Fat Free Mass	43.0	42.1	41.7	41.3	41.2	40.3	41.3	41.2
Total Body Water	49.5"	48.5	47"	44"	43.5"	42.5"	42.0"	42.0"
Waist (mm) (IN)	46mm	φ	φ	φ	φ	φ	φ	φ
Education?	3020							3020
HC Min.								
HC Max.								
HC Mean						HC 5.97		
esautin				+	+	+	+	
STV		2015		+	+	+	+	
TCHDL	173						TCHDL 243	
TRIG	101						TRIG 59	
HDL	44						HDL 62	
LDL	109						LDL 170	

↑ Return Visits →  
↑ TEACHING CLASS

First Visit

# Clinic Flow Sheet

Date	4/12/16	4/20/16	4/27/16	5/4/16	5/11/16	5/18/16	5/25/16	6/1/16	6/8/16	6/15/16	6/22/16	6/29/16	7/6/16	7/13/16	7/20/16	7/27/16	8/3/16	8/10/16	8/17/16	8/24/16	8/31/16	9/7/16	9/14/16	9/21/16	9/28/16	10/5/16	10/12/16	10/19/16	10/26/16	11/2/16	11/9/16	11/16/16	11/23/16	11/30/16	12/7/16	12/14/16	12/21/16	12/28/16	1/4/17	1/11/17	1/18/17	1/25/17	2/1/17	2/8/17	2/15/17	2/22/17	2/29/17	3/6/17	3/13/17	3/20/17	3/27/17	4/3/17	4/10/17	4/17/17	4/24/17	5/1/17	5/8/17	5/15/17	5/22/17	5/29/17	6/5/17	6/12/17	6/19/17	6/26/17	7/3/17	7/10/17	7/17/17	7/24/17	7/31/17	8/7/17	8/14/17	8/21/17	8/28/17	9/4/17	9/11/17	9/18/17	9/25/17	10/2/17	10/9/17	10/16/17	10/23/17	10/30/17	11/6/17	11/13/17	11/20/17	11/27/17	12/4/17	12/11/17	12/18/17	12/25/17	1/1/18	1/8/18	1/15/18	1/22/18	1/29/18	2/5/18	2/12/18	2/19/18	2/26/18	3/5/18	3/12/18	3/19/18	3/26/18	4/2/18	4/9/18	4/16/18	4/23/18	4/30/18	5/7/18	5/14/18	5/21/18	5/28/18	6/4/18	6/11/18	6/18/18	6/25/18	7/2/18	7/9/18	7/16/18	7/23/18	7/30/18	8/6/18	8/13/18	8/20/18	8/27/18	9/3/18	9/10/18	9/17/18	9/24/18	10/1/18	10/8/18	10/15/18	10/22/18	10/29/18	11/5/18	11/12/18	11/19/18	11/26/18	12/3/18	12/10/18	12/17/18	12/24/18	1/7/19	1/14/19	1/21/19	1/28/19	2/4/19	2/11/19	2/18/19	2/25/19	3/4/19	3/11/19	3/18/19	3/25/19	4/1/19	4/8/19	4/15/19	4/22/19	4/29/19	5/6/19	5/13/19	5/20/19	5/27/19	6/3/19	6/10/19	6/17/19	6/24/19	7/1/19	7/8/19	7/15/19	7/22/19	7/29/19	8/5/19	8/12/19	8/19/19	8/26/19	9/2/19	9/9/19	9/16/19	9/23/19	9/30/19	10/7/19	10/14/19	10/21/19	10/28/19	11/4/19	11/11/19	11/18/19	11/25/19	12/2/19	12/9/19	12/16/19	12/23/19	12/30/19	1/6/20	1/13/20	1/20/20	1/27/20	2/3/20	2/10/20	2/17/20	2/24/20	3/2/20	3/9/20	3/16/20	3/23/20	3/30/20	4/6/20	4/13/20	4/20/20	4/27/20	5/4/20	5/11/20	5/18/20	5/25/20	6/1/20	6/8/20	6/15/20	6/22/20	6/29/20	7/6/20	7/13/20	7/20/20	7/27/20	8/3/20	8/10/20	8/17/20	8/24/20	8/31/20	9/7/20	9/14/20	9/21/20	9/28/20	10/5/20	10/12/20	10/19/20	10/26/20	11/2/20	11/9/20	11/16/20	11/23/20	11/30/20	12/7/20	12/14/20	12/21/20	12/28/20	1/4/21	1/11/21	1/18/21	1/25/21	2/1/21	2/8/21	2/15/21	2/22/21	2/29/21	3/6/21	3/13/21	3/20/21	3/27/21	4/3/21	4/10/21	4/17/21	4/24/21	5/1/21	5/8/21	5/15/21	5/22/21	5/29/21	6/5/21	6/12/21	6/19/21	6/26/21	7/3/21	7/10/21	7/17/21	7/24/21	7/31/21	8/7/21	8/14/21	8/21/21	8/28/21	9/4/21	9/11/21	9/18/21	9/25/21	10/2/21	10/9/21	10/16/21	10/23/21	10/30/21	11/6/21	11/13/21	11/20/21	11/27/21	12/4/21	12/11/21	12/18/21	12/25/21	1/1/22	1/8/22	1/15/22	1/22/22	1/29/22	2/5/22	2/12/22	2/19/22	2/26/22	3/5/22	3/12/22	3/19/22	3/26/22	4/2/22	4/9/22	4/16/22	4/23/22	4/30/22	5/7/22	5/14/22	5/21/22	5/28/22	6/4/22	6/11/22	6/18/22	6/25/22	7/2/22	7/9/22	7/16/22	7/23/22	7/30/22	8/6/22	8/13/22	8/20/22	8/27/22	9/3/22	9/10/22	9/17/22	9/24/22	10/1/22	10/8/22	10/15/22	10/22/22	10/29/22	11/5/22	11/12/22	11/19/22	11/26/22	12/3/22	12/10/22	12/17/22	12/24/22	12/31/22	1/7/23	1/14/23	1/21/23	1/28/23	2/4/23	2/11/23	2/18/23	2/25/23	3/4/23	3/11/23	3/18/23	3/25/23	4/1/23	4/8/23	4/15/23	4/22/23	4/29/23	5/6/23	5/13/23	5/20/23	5/27/23	6/3/23	6/10/23	6/17/23	6/24/23	7/1/23	7/8/23	7/15/23	7/22/23	7/29/23	8/5/23	8/12/23	8/19/23	8/26/23	9/2/23	9/9/23	9/16/23	9/23/23	9/30/23	10/7/23	10/14/23	10/21/23	10/28/23	11/4/23	11/11/23	11/18/23	11/25/23	12/2/23	12/9/23	12/16/23	12/23/23	12/30/23	1/6/24	1/13/24	1/20/24	1/27/24	2/3/24	2/10/24	2/17/24	2/24/24	3/2/24	3/9/24	3/16/24	3/23/24	3/30/24	4/6/24	4/13/24	4/20/24	4/27/24	5/4/24	5/11/24	5/18/24	5/25/24	6/1/24	6/8/24	6/15/24	6/22/24	6/29/24	7/6/24	7/13/24	7/20/24	7/27/24	8/3/24	8/10/24	8/17/24	8/24/24	8/31/24	9/7/24	9/14/24	9/21/24	9/28/24	10/5/24	10/12/24	10/19/24	10/26/24	11/2/24	11/9/24	11/16/24	11/23/24	11/30/24	12/7/24	12/14/24	12/21/24	12/28/24	1/4/25	1/11/25	1/18/25	1/25/25	2/1/25	2/8/25	2/15/25	2/22/25	2/29/25	3/6/25	3/13/25	3/20/25	3/27/25	4/3/25	4/10/25	4/17/25	4/24/25	5/1/25	5/8/25	5/15/25	5/22/25	5/29/25	6/5/25	6/12/25	6/19/25	6/26/25	7/3/25	7/10/25	7/17/25	7/24/25	7/31/25	8/7/25	8/14/25	8/21/25	8/28/25	9/4/25	9/11/25	9/18/25	9/25/25	10/2/25	10/9/25	10/16/25	10/23/25	10/30/25	11/6/25	11/13/25	11/20/25	11/27/25	12/4/25	12/11/25	12/18/25	12/25/25	1/1/26	1/8/26	1/15/26	1/22/26	1/29/26	2/5/26	2/12/26	2/19/26	2/26/26	3/5/26	3/12/26	3/19/26	3/26/26	4/2/26	4/9/26	4/16/26	4/23/26	4/30/26	5/7/26	5/14/26	5/21/26	5/28/26	6/4/26	6/11/26	6/18/26	6/25/26	7/2/26	7/9/26	7/16/26	7/23/26	7/30/26	8/6/26	8/13/26	8/20/26	8/27/26	9/3/26	9/10/26	9/17/26	9/24/26	10/1/26	10/8/26	10/15/26	10/22/26	10/29/26	11/5/26	11/12/26	11/19/26	11/26/26	12/3/26	12/10/26	12/17/26	12/24/26	12/31/26	1/7/27	1/14/27	1/21/27	1/28/27	2/4/27	2/11/27	2/18/27	2/25/27	3/4/27	3/11/27	3/18/27	3/25/27	4/1/27	4/8/27	4/15/27	4/22/27	4/29/27	5/6/27	5/13/27	5/20/27	5/27/27	6/3/27	6/10/27	6/17/27	6/24/27	7/1/27	7/8/27	7/15/27	7/22/27	7/29/27	8/5/27	8/12/27	8/19/27	8/26/27	9/2/27	9/9/27	9/16/27	9/23/27	9/30/27	10/7/27	10/14/27	10/21/27	10/28/27	11/4/27	11/11/27	11/18/27	11/25/27	12/2/27	12/9/27	12/16/27	12/23/27	12/30/27	1/6/28	1/13/28	1/20/28	1/27/28	2/3/28	2/10/28	2/17/28	2/24/28	3/2/28	3/9/28	3/16/28	3/23/28	3/30/28	4/6/28	4/13/28	4/20/28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# Clinic Flowsheet

291 / 4/12/12

Initial Weight/Date

Weight (pounds)	232.5	227 (802)	229 (1102)	
Blood Pressure	125 / 80	121 / 74	166 / 92	1
Pulse	67	74	68	
Weight (kg)	105.7 <del>67</del>	103.2	104.2	
Body Mass Index	43.4	42.4	42.8	
Body Fat %	51.0%	45.5%	51.8%	
Fat Mass	54.0	47.0	54.0	
Fat Free Mass	51.8	56.2	50.2	
Total Body Water	37.9	41.1	36.8	
Waist (inches)	39.5"	39.5"	40.5"	
Edema (0-4+)		trace		
	A/C 6-2	7.7	5.9%	
BG Min.				
BG Max.				

# Clinic Flowsheet

291 (4/12/12)

Initial Weight/Date

Weight (pounds)	232.5	227(802)	229(1102)
Blood Pressure	125/80	121/74	166/92
Pulse	67	74	68
Weight (kg)	105.7	103.2	104.2
Body Mass Index	43.4	42.4	42.8
Body Fat %	51.0%	45.5%	51.8%
Fat Mass	54.0	47.0	54.0
Fat Free Mass	51.8	56.2	50.2
Total Body Water	37.9	41.1	36.8
Waist (inches)	39.5"	39.5"	40.5"
Edema (0-4+)		trace	
BG Min.			
BG Max.			

Lab Tests, Blood Glucoses, Medications

# Can People Stay On LCHF?

Initial Weight/Date

291 (4/12/12)

11/18/17

Date	10/5/16	11/9/16	1/18/17	1/1
Weight (pounds)	232.5	227(802)	229(1102)	
Blood Pressure	125/80	121/74	166/92	1
Pulse	67	74	68	
Weight (kg)	105.7	103.2	104.2	
Body Mass Index	43.4	42.4	42.8	
Body Fat %	51.0%	45.5%	51.8%	
Fat Mass	54.0	47.0	54.0	
Fat Free Mass	51.8	56.2	50.2	
Total Body Water	37.9	41.1	36.8	
Waist (inches)	39.5"	39.5"	40.5"	
Edema (0-4+)		trace		
	A1C 6.2	7.7	5.9%	
BG Min				

Reduction in HgbA1c from 7.7% to 5.9%

BG







# People Choose Their Food

Wt. (lbs)	223 (502)	221 (502)	220 (162)
Wt. (kg)	101.3	100.4	100.1
Body Fat %	45.9%	46.1%	46.7%
Free Mass	54.8	54.1	53.4
Body Water	40.1	39.6	39.6
Height (IN)	41.5"	40.5"	40.5"
Notes			Joints feel better

1.a. Morning Meal: egg, cheese, bacon

1.b. Morning Beverage: coffee w/ Splenda 1/2 & 1/2

1.c. Midday Meal: meat, veggie

1.d. Midday Beverage: water, sf drink, coffee

1.e. Evening Meal: meat, veggie

1.f. Evening Beverage: water, sf drink, coffee

1.g. Snacks: nuts, pork rinds, meat, veggie

2. How many times per week do you get regular exercise? 1

3. What kind of activity do you do? Zumba

4. How long do you typically do the activity? 60 mins

(No need to buy products, take medications, or eat what you don't like.)

Date of Birth: 6/17/88Height (in.): 6'0"

Initial BMI: \_\_\_\_\_

Date			
Weight (pounds)	322.8	317.0	308.1
Blood Pressure	152/91	155/99	166/100
Pulse	83	71	71
Weight (kg)	146.4	143.8	140.1
Body Mass Index	48.9	48.0	46.8
Body Fat %	45.6%	47.1%	46.4%
Fat Mass	66.7	67.7	65.1
Fat Free Mass	79.7	76.1	75.1
Total Body Water	58.3	55.7	55.0
Waist (inches)	46.0"	46.0"	45.5"
Edema (0-4+)	1+	0-trace	0-trace
Neck	15.5		
BG Min.			
BG Max.			
BG Mean			
Metoprolol			(+)
TZ			(+)
Simvastatin			(+)
Aspirin			(-)
Albuterol			(-)

NO  
Hypertension!

1.a. Morning Meal: 2 boiled eggs, 4 slices turkey Bacon, or 1 protein shake

1.b. Morning Beverage: Water, protein shake

1.c. Midday Meal: 2 servings turkey pepperoni (36 slices) or pork rinds

1.d. Midday Beverage: Water and diet soda

1.e. Evening Meal: 1 burger, 2 cups vegetables, or salad w/ chicken, or chicken wing and 2 cups veggie

1.f. Evening Beverage: Water and diet soda

1.g. Snacks: Turkey pepperoni, pork rinds, 2 table spoons of hummus, 4 oz cheese

2. How many times per week do you get regular exercise? 2

3. What kind of activity do you do? Zumba

4. How long do you typically do the activity? 1 hrs

5. What do you do for stress management? Talk to family

Date of Birth: [redacted]

Height (cm): 170

Height (in): 67

Initial BMI:

Date		
Weight (pounds)	171 (120)	188 (102)
Blood Pressure	132/89	125/73
Pulse	93	93
Weight (kg)	87.0	95.3
Body Mass Index	30.8	30.2
Body Fat %	39.77	40.07
Essential Fat	34.5	34.2
Fat Free Mass	52.5	51.2
Total Body Water	38.4	37.5
Waist (inches)	44"	43.5"
Edema (0-4+)	0	0
BG Min.		
BG Max.		
BG Mean		
Keto Cancer		
BRCA+		
Venlafaxine 150mg		

1.a. Morning Meal: Eggs w/ cheese pico de mango

Sausage

1.b. Morning Beverage: coffee

1.c. Midday Meal: Lettuce lunch meat and cheese w/ ranch

1.d. Midday Beverage: coffee and water

1.e. Evening Meal: loaded cauliflower and roast

1.f. Evening Beverage: water and diet tea

g. Snacks: ~~protein~~

How many times per week do you get regular exercise? 2 ~ 7:15

What kind of activity do you do? walking

How long do you typically do the activity?

Date of Birth: [REDACTED]

Weight: 160

Height (in.): 53"

Initial BMI:

Date			
Weight (pounds)	164 (1502)	161 (902)	155 (702)
Blood Pressure	126/84	140/96	131/92
Pulse	92	79	76
Weight (kg)	77.1	73.3	70.5
Body Mass Index	30.1	28.6	27.5
Body Fat %	34.3%	31.8%	30.6%
Fat Mass	26.5	23.3	21.6
Fat Free Mass	50.7	50.0	48.9
Total Body Water	37.1	36.6	35.8
Waist (inches)	40.5"	38.5"	37.5"
Edema (0-4+)	6	4	
A1C	8.5%	6.2%	
BG Min.		85	80
BG Max.		95	100
BG Mean			

I.a. Morning Meal: MAYBE 2-3 SLICES OF BELL TURKEY ON INSIDE OF A CHICKEN PICO

I.b. Morning Beverage: DJET SOFTDRINK OR TEA 4/SPLE

I.c. Midday Meal: MAYBE INSIDE OF A HAMBURGER OR TACO ON INSIDE OF SW SANDWICH

I.d. Midday Beverage: DJET SOFTDRINK OR TEA 4/SPLE

I.e. Evening Meal: USUALLY CHICKEN MEAT

I.f. Evening Beverage: DJET SOFTDRINK OR TEA 4/SPLE

I.g. Snacks: PEANUTS, ALMONDS

How many times per week do you get regular exercise? \_\_\_\_\_

What kind of activity do you do? \_\_\_\_\_

Metformin 2  
Glibenclamide

↓ to 1 D/C (-)

# Most Common Mistakes: “Early On” Too Many Carbs

- No rice? But what about *brown* rice?
- No potatoes? But what about *sweet* potatoes?
- No fruit? But what about fruit *juice*?
- No bread? But what about *whole grain* bread?
- Fruit infused water, “smoothies”
- Too many sugar-free candies, mints, gum
- Using “Net Carbs” rather than “Total Carbs”
- “No Carb” Diet = No “Carb-ONATION” Diet

Date of Birth: [REDACTED]

174

Height (in.): 6'5"

Initial BMI: \_\_\_\_\_

Date			
Weight (pounds)	218 (6oz)	211 (7oz)	210 (9oz)
Blood Pressure	121 / 77	115 / 81	110 / 72
Pulse	75	79	71
Weight (kg)	99.0	95.9	95.5
Body Mass Index	32.7	36.7	31.5
Body Fat %	49.1%	47.3%	47.9%
Fat Mass	48.6	45.3	45.8
Fat Free Mass	50.4	50.6	49.7
Total Body Water	36.9	37.0	36.4
Waist (inches)	42.5	39.5"	40.0"
Edema (0-4+)	Trace	0	1

BG Min.

BG Max.

BG Mean

Notes

1.a. Morning Meal: Boiled Egg (2)1.b. Morning Beverage: Water / Diet Mtn Dew;  
0 Calorie Powerade1.c. Midday Meal: Celery / cheese pimento1.d. Midday Beverage: Water / Diet Mtn Dew1.e. Evening Meal: Fish, Spinach, riced cauliflower  
or mashed cauliflower1.f. Evening Beverage: Tea / Water

1.g. Snacks: \_\_\_\_\_

2. How many times per week do you get regular exercise? 1-23. What kind of activity do you do? Cardio4. How long do you typically do the activity? 15 min5. What do you do for stress management? walk

Date of Birth: \_\_\_\_\_

Date				
Weight (pounds)	241 (10 <sub>02</sub> )	239 (3 <sub>02</sub> )	239 (1 <sub>02</sub> )	239 (3 <sub>02</sub> )
Blood Pressure	152/91	194/99	118/80	153/89
Pulse	98			
Weight (kg)	109.6	108.5	108.8	108.5
Body Mass Index	38.8	38.4	38.5	38.4
Body Fat %	46.4%	45.9%	45.9%	47.8%
Fat Mass	50.9	49.8	50.0	51.8
Fat Free Mass	58.7	58.7	58.8	56.7
Total Body Water	43.0	43.0	43.0	41.5
Waist (inches)	50"	50"	48"	50"
Edema (0-4+)	trace	trace	+	trace
BMI = 5 years				
BG Min.	123	100	110, 125	99
BG Max. A.K.A. 7.17.	280	200	< 150	150
BG Mean				
muscle				hip pain
any pink		+	+	+
otomycin		+	+	+

--	--	--	--	--

1.a. Morning Meal: <sup>②</sup> Eggs + Bacon

1.b. Morning Beverage: Coffee Milk

1.c. Midday Meal: ~~\_\_\_\_\_~~

1.d. Midday Beverage: \_\_\_\_\_

1.e. Evening Meal: Chicken Cabbage Chicken Brat

1.f. Evening Beverage: \_\_\_\_\_

1.g. Snacks: \_\_\_\_\_

Date of Birth: 4  
269 (12/2/19)

Weight (kg): 110.0

Height (in.): 67"

Initial BMI: \_\_\_\_\_

BP	211 (100/2)	209 (110/2)	215 (30/2)
Pulse	125 / 67	116 / 70	131 / 79
Wt. (kg)	63	70	75
BMI	96.0	95.1	97.6
Body Fat %	33.2	32.9	33.8
Fat Mass	49.77	43.43	48.22
Fat Free Mass	47.7	41.3	47.1
Total Body Water	48.3	53.9	50.5
Waist (in) (IAN)	35.4	39.4	37.0
	42"	42"	42"
Education?		0- hrs	
BG Min.			
BG Max.			
BG Mean			
	osony?	:	

1.a. Morning Meal: ATKINS DRINK & 3 slices of bacon

1.b. Morning Beverage: Unsweetened ice tea

1.c. Midday Meal: \_\_\_\_\_

1.d. Midday Beverage: unsweet ice tea or water

1.e. Evening Meal: Salad, baked chicken, ice cream

1.f. Evening Beverage: tea or water

1.g. Snacks: crackers, cookies, chips, ice cream

2. How many times per week do you get regular exercise? 5

1. What kind of activity do you do? walking - 2 miles

How long do you typically do the activity? 1-2 hours

# Simplify, Encourage, Support

- Let people share what happened, but NEVER dwell on it. No shame, no guilt, no embarrassment allowed!
- “Back the Start”
- “Back to the Allowed Food List”
- “Do you need another list?” : )
- Every new day is a chance to start again
- LCHF doctor is a teacher, a cheerleader, a medication reduction expert
- LCHF doctor is a holistic practitioner

"Don't assume..."

Date of Birth: Prosthesis  
Date

Wt. (lbs)	232 (9.2)	219 (57kg)	<del>100</del>	212 (8.4kg)	204 (229kg)	207	212 (13kg)	208 (1kg)
BP	129/81	107/67		104/70	121/81	112/81	147/83	151/80
Pulse	81	81		77	75	77	79	73
Wt. (kg)	105.5kg	99.4kg		96.4kg	92.9kg		96.2kg	94.4kg
BMI								
Body Fat %								
Fat Mass								
Fat Free Mass								
Total Body Water								
Waist (mm) (IN)	49.5"	49.0"		44"	44	43.5"	44"	40"
Education?								
Hg. Max.								
Hg. Min.								
Hg. Mean								
Amlodipine 10				+	stopped			
Carvedilol 12.5				+		+		
HCT 2 25				+		+		
Lisinopril 40				(-)				
Losartan								
Metformin				+	stopped			

Omeprazole PRN  
Opana ER  
Effexor

11/11/11  
44  
A/C 5.9%

⊖ edema

1<sup>st</sup> edema to

450x1w

# The New Prosthetic Leg Weighed More!



# What About Calculating Macros? (Macronutrients)

## CALCULATING MACROS

PLATE (FOOD)  
(ONLY)

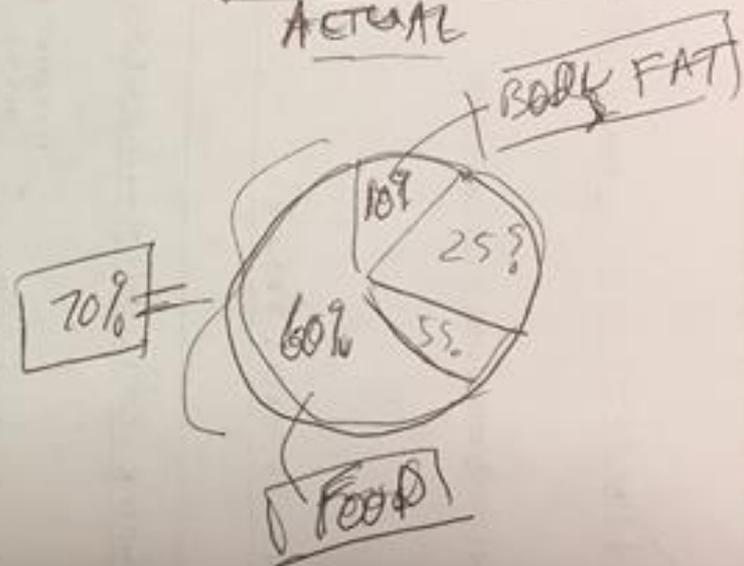


5%

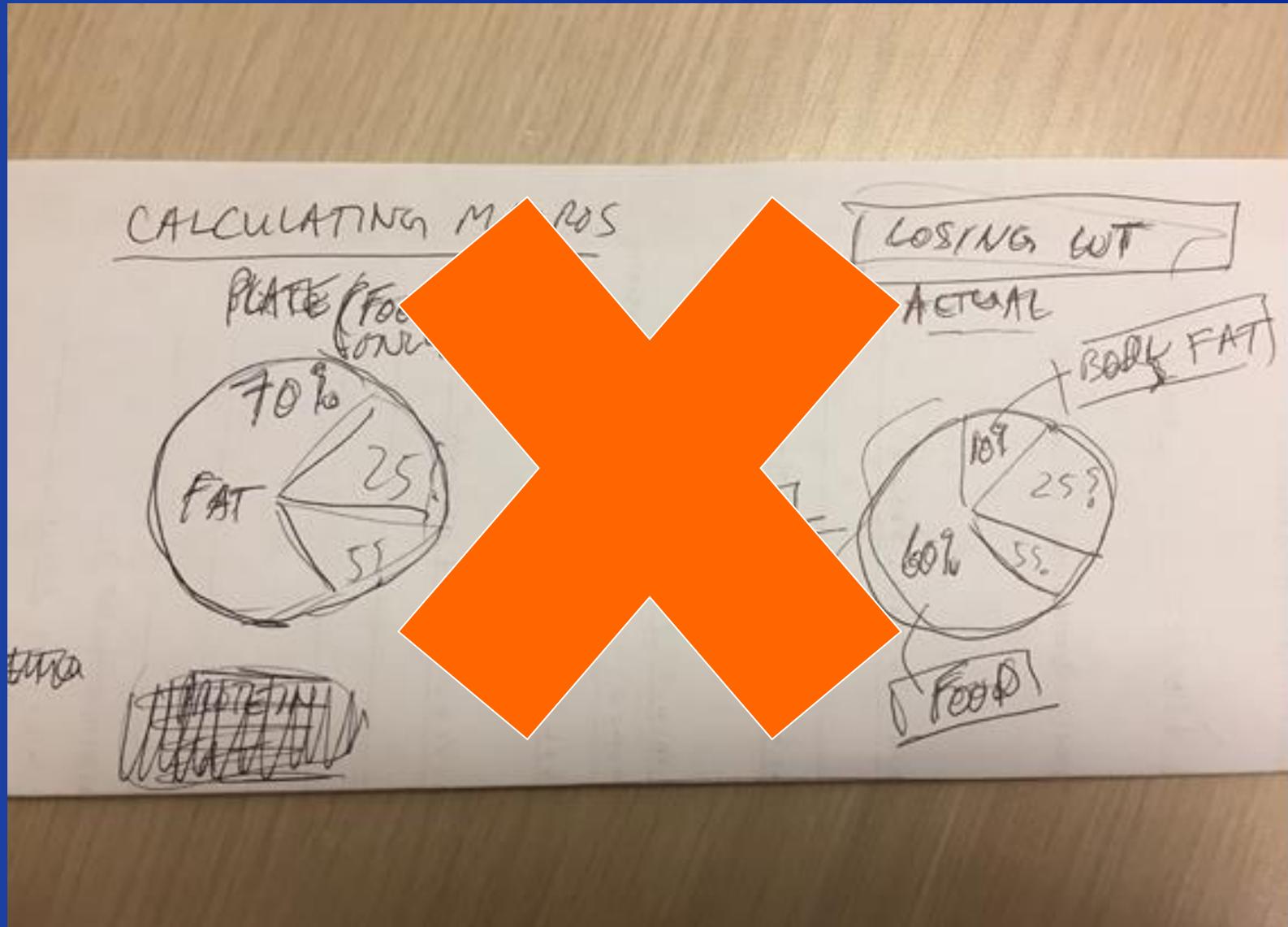


LOSING WT

ACTUAL



# No Need to Calculate Macros!



Wt. (lbs)	182.2	178.2	188 (15.2)	186 "	188 (16.2)	189 (13.2)
BP	150 / 103	136 / 81	141 / 95		140 / 90	119 / 80
Pulse	64 ✓	91	92		91	99
Wt. (kg)	82.7	80.9	85.3		85.6	86.1
BMI	32.3	31.6	33.5		33.4	33.6
Body Fat %	46.7%	47.1%	47.4%		47.8%	48.6%
Fat Mass	85.0	84.6	40.6			41.9
Fat Free Mass	97.2	94.2	45.1			44.2
Total Body Water	71.0	69.0	33.0			32.4
Waist (IN)	41.0"	40.5"	44"		43.5"	44"

- Education?
- BG Min.
- BG Max.
- BG Mean
- Chlorzhalidone
- Flonase
- metformin
- rotoniv
- abagente

1.a. Morning Meal: yogurt, apple, ~~orange~~

1.b. Morning Beverage: Coffee, water

1.c. Midday Meal: Stuffed Chicken w/ kale  
brown rice

1.d. Midday Beverages: water lemonade

1.e. Evening Meal: Flounder, Cabbage and  
egg salad

1.f. Evening Beverage: water lemonade

298

Height (cm): 185

Height (in.): 73"

Date	12/14/15	3/14/16	4/15/16	6/10/16	10/20/16	1/18/17
Wt. (lbs)	212.8	217.2	217 (250)	215 (302)	214 (302)	206 (902)
BP	1	127/73	125/70	129/82	125/74	124/73
Pulse		68	60	70	54	69
Wt. (kg)						
BMI	28.1	28.7	28.8	28.5	28.4	27.4
Body Fat %	22.4%	21.1%	21.3%	21.1%	20.9%	18.1%
Fat Mass	47.6	45.8	21.0	21.1%	20.3	17.0
Fat Free Mass	165.2	171.4	177.5	77.0	77.0	76.7
Total Body Water	120.8	125.4	156.7	56.4	56.4	56.1
Waist (mm) (IN)	38.5"	37.0"	36.5"	36.0"	36.0"	36.5"
Education?						
Min.						
Max.						
Mean						

# Most Common Mistakes: “Later On” Too Many Calories

- Yes, calories matter, it’s just that they don’t have to be counted on a low carbohydrate diet
- For just about everyone, LCHF becomes what is called a “low calorie diet”
- Habit eating (eating because “it’s time to eat”)
- Social eating
- “Love” of eating
- Alcohol
- Zero carbs, but high calorie (oils, butter)

# Do you have to exercise to lose weight?

## No.

1. What and how much do you typically eat and drink for the following meals?

Please be specific.

1.a. Morning Meal: 2 boil eggs or bacon <sup>either or</sup> sausage w/ eggs

1.b. Morning Beverage: crystal light 1 glass

1.c. Midday Meal: salad or meat + 1 cup veg

1.d. Midday Beverage: water or crystal light

1.e. Evening Meal: meat + 1 cup veg

1.f. Evening Beverage: diet Pepsi

g. Snacks: pork skins, jello (little cup)

How many times per week do you get regular exercise? 0 due to bad back @ doctors now (PT)

What kind of activity do you do? none

How long do you typically do the activity? none

What do you do for stress management? PT sessions

# But you CAN exercise on LCHF!

1.a. Morning Meal: NOTHING OR 3 EGGS 3 BACON

b. Morning Beverage: SALT WATER COFFEE W/ COCONUT OIL POWDER

Midday Meal: 7 OZ MEAT 3 TBSP OIL. <sup>AVOCADO OIL</sup>  
AVOCADO. <sup>MAYO.</sup>  
<sup>SALAD DRESSING</sup>

Midday Beverage: COFFEE W/ COCONUT OIL POWDER WATER.

Evening Meal: GREEN VEGGIES 7 OZ MEAT

Evening Beverage: TEA

Snacks: NONE

How many times per week do you get regular exercise? 5

What kind of activity do you do? WEIGHTS / HIIT

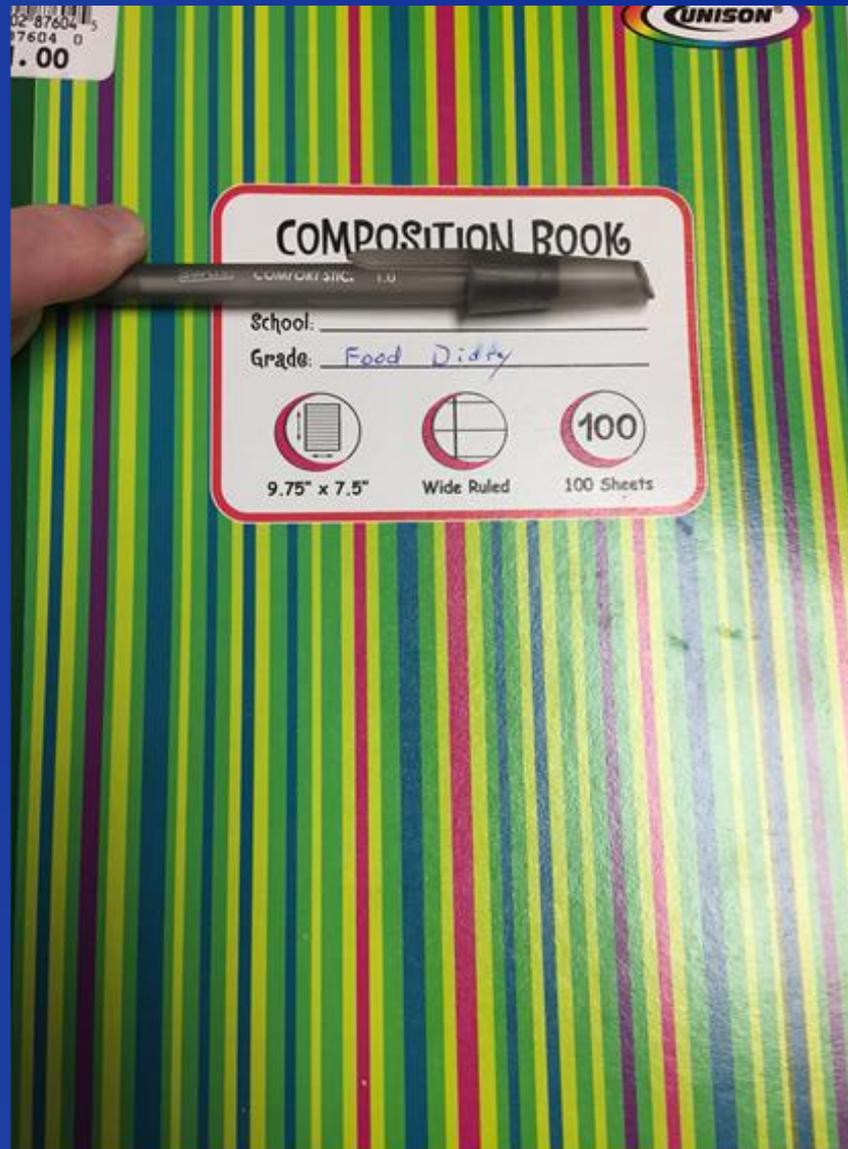
How long do you typically do the activity? 30 min.

Date of Birth: [REDACTED]

Date									
Wt. (lbs)	290.2	284.4	274.0	265.2	254.2	248.0	239.4	236.0	229.8
BP	115/76	109/69	110/72	131/92	120/84	126/88	135/92	135/93	156/101
Pulse	82	93	83		72	70	67		
Wt. (kg)									
BMI	44.1	43.2	41.7	40.3	38.7	37.7	36.4	35.9	34.9
Body Fat %	37.5%	38.6%	36.2%	34.5%	34.0%	31.2%	30.6%	27.1%	29.6
Fat Mass	108.8	109.8	99.2	91.4	86.4	77.4	73.2	64.0	68
Fat Free Mass	181.4	174.6	174.8	173.6	167.8	170.6	166.2	172.0	161.8
Total Body Water	132.8	127.0	128.0	127.2	122.8	124.8	121.6	126.0	118.4
Waist (mm) (IN)	49"	48"	47.5"	46.0	44.5"	43"	41.5"	41.5"	40.5"
Education?					PhD		PhD	PhD	PhD
BG Min.					Very Fast				
BG Max.									
BG Mean			PhD						
	- thyroid								
Amblyopia 5						D/C			
Dominant - Her		O/C							
160-12.5									
HDL 37					Extraneous		Rule. m		
					com.				



Do you have to self-monitor?  
No.



# But you CAN self-monitor!

1-1-17

154½ LBS

Blood sugar this morning 173 8:57 AM

Breakfast: 2 eggs scrambled with cheese  
Bacon  
Coffee

Lunch: Grilled chicken, Beef, shrimp, and Vegies  
Diet coke

Supper: Grilled chicken, steamed cabbage  
salad  
Diet Coke

Blood sugar tonight

1-12-17

Blood sugar this morning 157 7:23 AM

Breakfast: 2 eggs scrambled with cheese  
Bacon  
Coffee

Lunch: Baked chicken  
Green Beans  
Diet Coke

Supper: Salad with grilled shrimp  
grilled vegies  
Diet Coke

Blood sugar tonight 136 8:04 PM

# Do You Have to Closely Watch Food Quality?

## No, but you CAN!

- Grass-fed vs. grain-fed beef
- Butter, olive and coconut oil vs. vegetable and seed oils
- No processed foods to the exclusion of deli meats
- No artificial sweeteners vs. artificial sweeteners
- Stevia only
- Farmer's market vs. fast food

# Learning a New Way of Eating Also Requires Forgetting the Old Ways

- It's okay to eat fat
- It's okay to have salt (if you don't have high blood pressure or a history of heart failure)
- It's okay to have meat with fat (not "lean meat")
- Medical: eating a banana is the only way to get potassium
- Sociocultural: canned meats

# Examples Were Taken From 1 Return Clinic Day

Time	Patient	Age/Sex	Type	Notes	Status	Provider
8:30 AM		41 y.o. / M	OFFICE VISIT	flu 3months	Closed: Comp	Eric C Westman, MD
8:30 AM		65 y.o. / M	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
8:50 AM		35 y.o. / M	OFFICE VISIT	ret visit	Closed: Comp	Eric C Westman, MD
8:50 AM		55 y.o. / F	OFFICE VISIT	flu 2 wks	Closed: Comp	Eric C Westman, MD
9:10 AM		71 y.o. / M	OFFICE VISIT	follow up 6 weeks	Closed: Comp	Eric C Westman, MD
9:30 AM		34 y.o. / F	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
9:50 AM		73 y.o. / F	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
9:50 AM		65 y.o. / F	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
10:10 AM		55 y.o. / M	NEW PATIENT	wt loss/Dr Seylar referral	Sch	Eric C Westman, MD
10:10 AM		45 y.o. / F	OFFICE VISIT	RET	Closed: Comp	Eric C Westman, MD
10:30 AM		50 y.o. / F	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
10:30 AM		66 y.o. / F	OFFICE VISIT	flu 1 mos	Closed: Comp	Eric C Westman, MD
10:50 AM		46 y.o. / M	OFFICE VISIT	F/U	Closed: Comp	Eric C Westman, MD
11:10 AM		59 y.o. / M	OFFICE VISIT	flu 4 wks	Closed: Comp	Eric C Westman, MD
11:30 AM		55 y.o. / F	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
11:50 AM		46 y.o. / M	OFFICE VISIT	flu 3 wks	Closed: Comp	Eric C Westman, MD
1:10 PM		35 y.o. / F	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
1:10 PM		36 y.o. / F	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
1:30 PM		38 y.o. / F	OFFICE VISIT	2WEEKS	Closed: Comp	Eric C Westman, MD
1:50 PM		29 y.o. / M	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
2:10 PM		55 y.o. / F	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
2:30 PM		51 y.o. / M	OFFICE VISIT	flu	Sch	Eric C Westman, MD
2:30 PM		45 y.o. / M	OFFICE VISIT	flu 1mth	Sch	Eric C Westman, MD
2:50 PM		53 y.o. / F	OFFICE VISIT	ret visit	Sch	Eric C Westman, MD
3:10 PM		67 y.o. / M	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
3:30 PM		47 y.o. / F	OFFICE VISIT	flu 1 mos	Sch	Eric C Westman, MD
3:30 PM		48 y.o. / F	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
3:50 PM		53 y.o. / M	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD
3:50 PM		54 y.o. / M	OFFICE VISIT	flu	Closed: Comp	Eric C Westman, MD

# Clinical Experience Using LCHF

## Conclusions

- Duke Lifestyle Medicine Clinic has used LCHF as the first-line treatment for 10 years
- An LCHF lifestyle is healthy, and can be used as a therapy for many chronic medical conditions
- LCHF is relatively simple, but requires proper training by practitioners and consumers
- Patients with diabetes, hypertension, heart failure, gout, or kidney stones require special consideration/monitoring
- This type of Lifestyle Medicine: “LCHF Medicine”...  
**ROCKS!**

# Thank You!

Eric C. Westman, M.D. M.H.S.

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Duke University Medical Center

Durham, North Carolina USA

Course Director, Medical Management of Obesity

Chairman, Obesity Medicine Association

Fellow, The Obesity Society

Editor, Obesity: Evaluation & Treatment Essentials

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