5 Things Women with Diabetes Should know about Menopause:

By, Dr. Mache Seibel
Founder The Hot Years Magazine (found www.HotYearsMag.com)

This webinar is intended solely for health educational purposes and not for medical treatment or advice. If you are in need of medical attention, be sure to discuss it with your doctor or health care provider.
5 Things Women with Diabetes Should know about Menopause

Discover some of the most common changes in Menopause and how they may impact diabetes.
“Mighty Might” Fattest Kid in County

Wearing a surgical mask and a hospital scrub top, Dr. Mar- chelle Seibel cautiously approaches her patient—a 2,300-lb., 27- year-old female unconscious on a gurney, surrounded by high-tech equipment. “Temperature 100.0 degrees, heart rate 78,” calls an attendant. It could be a scene from E.R., except that the patient is merely a potential mother undergoing a routine ultrasound as part of an annual exam. And she's a gorilla.

For nearly five years, Seibel, 50, a leading reproductive endocrinologist who is an expert in human infertility treatment, has been treating primates at Boston's Franklin Park Zoo. There she does everything from freezing gorilla sperm to treating hormone imbalances in mandrills.

"Traditionally scientists work on animals to learn about people," says Seibel. "I thought for once human experience might be useful to animals."

Indeed it has been, says Dr. Hay- ley Weston, the zoo's chief veterinarian, who first called on Seibel to help with reproductive problems in gorillas, an endangered species whose survival may one day depend on the fewer than 1,000 now in captivity. "We're primates too," says Weston. "So he is pretty well versed in pri- mate reproduction."

Seibel has monitored some 20 animal patients, performing sonograms on mammals and potatoes.

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Estradiol
C_{18}H_{24}O_2

Women’s Health Initiative

www.HotYearsMag.com
menopause

DiabetesSisters
The Hot Years
A GLOBAL TRANSITION

BY 2025 THERE WILL BE 1,100,000,000 POST-MENOPAUSAL WOMEN WORLDWIDE

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Age-adjusted Prevalence of Obesity and Diagnosed Diabetes Among US Adults

**Obesity (BMI ≥30 kg)**

1994

No Data       <14.0%        14.0%–17.9%        18.0%–21.9%       22.0%–25.9%       >26.0%

2000

2014

**Diabetes**

1994

No Data       <4.5%       4.5%–5.9%       6.0%–7.4%       7.5%–8.9%       ≥9.0%

2000

2014

NOTE: Survey method changes in 2011 may impact trends

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Diabetes Prevalence (%) vs. Synthetic Organic Chemical Production (Billions of Kilograms)
Women With Diabetes

- ~9.7 US Women have diabetes
- 1.3 million 18-44 (1/2 million don’t know)
- 2.4 million 45-64 (3/4 million don’t know)
- 4 million ≥ 65 (1 million don’t know)

http://www.HotYearsMag.com
Menopause & Diabetes

- More common after 45 years
- Both due to hormone deficiency
- Both can be treated with hormones
- Many symptoms in common
- Treatment makes symptoms better
- Many don’t realize they have it

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Natural Menstrual Cycle

FOLLICULAR PHASE

OVULATION

LUTEAL PHASE

DAYS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

HORMONE LEVEL

LH
FSH
ESTROGEN
PROGESTERONE

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May Menopause Magazine
Cyclic Balance

Acyclic Imbalance

Steady State

Hormone Level Patterns
Changes (6 Months)

Excerpted from *Harvard Women’s Health Watch* September 1999 and ASRM
Women with Type 1 diabetes go through puberty later and menopause earlier.
Common Symptoms of Menopause

- Whacky Periods
- My Heart Is Racing
- Who Turned Up The Heat
- It’s a Sahara “Down There”
- Bone Loss

www.HotYearsMag.com
Symptoms: Menopause & Diabetes

- Riding the Mood Roller Coaster
- What’s With My Bladder
- I Am So Tired
- I’d Rather Be Shopping
Estrogen and Your Weight
Estrogen and Insulin

- Estrogen increases insulin sensitivity in both non-diabetics and diabetics
- Slows glucose production from the liver in type 2 diabetes
- HRT lowers total body fat mass
- HRT reduces hyperandrogenicity
  - Improves insulin sensitivity on muscles


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Estrogen Route & Insulin

- Transdermal Estrogen $\uparrow$ Insulin sensitivity
- Low dose oral Estrogen $\uparrow$ Insulin sensitivity
- High dose oral Estrogen $\downarrow$ Insulin sensitivity
- Oral Progestin $\downarrow$ Insulin sensitivity

Hormones and HgbA1c

- 15,435 women with type 2 diabetes
- 25% currently using HRT
- HgbA1c 0.5 points lower on HRT
- 0.5 points lower = ↓10% in diabetic complications and ↓7% in MI

http://care.diabetesjournals.org/content/24/7/1144.long
Estrogen receptors located in the hypothalamus of the brain serve as a “master switch” to control food intake, energy expenditure, and body fat distribution.

Researchers deactivated ER-α receptors in the VMN of mice.

Animals quickly developed abnormal glucose tolerance and weight gain that went straight to their middle.

In a study of over 2000 Japanese women who had abnormal ER-α genes had increased abdominal fat and increased waist-hip ratios.

Estrogen and Belly Fat - Mice

- Rats had their ovaries removed by surgery to create menopause
- Half got estrogen and half did not
- Rats who received estrogen did not gain weight while those that did not receive estrogen gained weight
- Estrogen increases sensitivity to leptin

Estrogen and Belly Fat - Women

- A study of women with and without HRT for 12 months
- They noted if women were “Apples” or “Pears”
- Weight did not change in either group
- Belly fat (visceral) increased in controls, not in HRT group
- “Apples” tended to lose belly fat in HRT group
- No change in belly fat in pears
- HRT group – ↓ LDL; ↑TG and ↑ HDL

Scientists sampled abdominal and thigh fat cells from 12 premenopausal and 11 postmenopausal women.

After menopause, the individual fat cells change the way their enzymes and proteins store and metabolize fat.

Fat cells store and deposit more fat after menopause than before menopause. Proteins, revved up by the estrogen drop, cause fat cells to store more fat.

Postmenopausal women burned less fat than premenopausal women.

Estrogen is the most likely reason.

http://diabetes.diabetesjournals.org/content/62/3/775.abstract
So What Can You Do About It?

My strategy for losing or controlling weight in menopause ± Diabetes
Lifestyle Changes

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Exercise and Weight Control

- You DON’T have to run a marathon
- Begin with walking
- Ideally 150 minutes per week
- Wear a pedometer – try to get 10,000 steps/day
Exercise and Weight Control

- Compared the effects of outdoor vs indoor exercise
  - Outdoors was associated with a
    - Greater revitalization
    - Increased energy
    - Positive engagement
    - Decreased tension, confusion, anger and depression

http://www.sciencedaily.com/releases/2011/02/110204130607.htm
Indirect Benefits of Exercise

- Improve sleep
- Improve mood
Exercise and Weight Control

- Burst exercise – high intensity, short duration
  - Helps to burn fat, build muscle, regulate blood sugar
  - Ideally 75 minutes per week

- Jazzercise, weight lifting, running in place

- Dancing with your partner

- Gardening

- Tai Chi, Yoga, Martial Arts
Exercise & Heart Rate Table

- When you exercise, the goal is to choose a level that will cause your heart to beat at 60 to 75% of its maximum capacity.

- Always discuss what is an ideal heart rate for you with your doctor.

- As a simple estimate, subtract your age from 220

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Behavior and Weight Control

- 480 overweight and obese postmenopausal women (ages 52 – 62 years)

- WOMAN (Women On the Move through Activity & Nutrition) Study

- Here’s what works to lose weight at 6 months
  - Decrease restaurant eating
  - Decreased fried foods
  - Decrease deserts
  - Decrease sugar-sweetened beverages
  - Increased fish consumption

Behavior and Weight Control

- 480 overweight and obese postmenopausal women (ages 52 – 62 years)

- WOMAN (Women On the Move through Activity & Nutrition) Study

- Here’s what works to lose weight at 48 months
  - Decrease deserts
  - Decrease sugar-sweetened beverages
  - Decreased meats/cheeses
  - Increased fruits and vegetables

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How To Measure Your Waist

- Place the tape measure around your bare stomach, just above your hipbone.
- Pull the tape measure snugly around you, but don't push it into your skin.
- Be sure the tape measure is level all the way around.
- Relax and exhale and but don’t suck in your stomach.
- Measure your waist.
Why It Matters

Metabolic Syndrome

- High Blood Sugar
- High Blood Pressure (>130/85)
- Waist >40” Men; >35” Women
- Triglycerides >150
- HDL <40 Men; <50 Women