Back To Chiropractic CE Seminars

Labs for the DC: Diabetes Type II
2 Hours

- Presented by John B. Campise, D.C.-

Welcome to Back To Chiropractic Online CE exams:

This course counts toward your California Board of Chiropractic Examiners CE. (also accepted in other states, check our website or with your Chiropractic State Board). The California Board requires that you complete all of your CE hours **BEFORE** the end of your Birthday month. We recommend that you send your chiropractic license renewal form and fee in early to avoid any issues.

Exam Process: Please read all instructions before starting!

1. You must register/pay first. If you haven't, please return to: backtochiropractic.net

2. Open a new window or a new internet tab & drag it so it's side-by-side next to this page.

3. On the new window or new tab you just opened, go to: backtochiropractic.net website.

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5. Click on the Exam for the course you want to take. No passwords needed.

6. Follow the Exam instructions.

7. Upon passing the exam you'll be able to immediately download your certificate,

and it'll also be emailed to you. If you don't pass, you can repeat the exam at no charge.

Please retain the certificate for 4 years. If you get audited and lose your records, I'll have a copy.

I'm always a phone call away... 707.972.0047 or email: marcusstrutzdc@gmail.com -Marcus Strutz, DC, Back To Chiropractic CE Seminars

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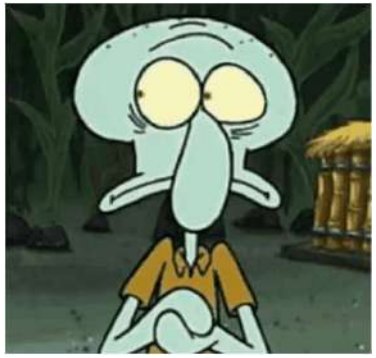

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John B. Campise, Doctor of Chiropractic

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EDUCATION

-Doctor of Chiropractic, March 2001 – Life Chiropractic College West, Hayward, CA

-Undergrad 90 quarter hours, June 1997 – Santa Clara University, Santa Clara, CA

CHIROPRACTIC TECHNIQUE ADVANCED STUDY

-Neuro-Emotional Technique Certification, January 2006, Dr. Scott Walker, D.C., NET, Inc., Carlsbad, CA

-Applied Kinesiology Certification, May 1999, Tim Francis, D.C., ICAK USA, Sunnyvale, CA

-Carrick Institute Chiropractic Neurology Diplomate Course: 250 hours audited, May 1999

John B. Campise, Doctor of Chiropractic

CONFERENCE PRESENTATIONS

-Neuro-Emotional Technique “Success Seminars” 25th Anniversary. *24 hour clock acupuncture theory correlations to NET and homeopathic support of the chiropractic adjustment.*

CHIROPRACTIC PRACTICE

-Campise Chiropractic private practice, June 2001 - Present, Fresno, CA. General Practice with a focus on nutrition, wellness, and rehabilitation of traumatic brain injuries.

-Dr. Kotsonis, D.C., DACNB Chiropractic Office, Jan 2015 - Dec 2015, Clinton Township, MI. General practice with a focus on stroke rehabilitation. For 2 weeks every month Dr. Campise was trained by and filled in for Dr. Kotsonis while he recovered from lumbar spinal fusion surgery.

Laboratory Interpretation For the Chiropractor:
Diabetes, Type II
~ 2hrs
Overview

This presentation has the following sections:

- Clinical overview
- Causes of condition
- Signs and Symptoms
- Labs findings and interpretation
- Medical vs alternative treatment options

Type II Diabetes

Diabetes

We will cover lab tests for Type II diabetes

Type I Diabetes

Autoimmune disease

Beta cell of the pancreas are destroyed by the immune system.

Cannot make insulin and requires insulin injections.

Type II Diabetes

Lifestyle diabetes

Insulin Resistance diabetes

High insulin at first because muscle cells can't use it to let glucose in. Eventually pancreas stops producing insulin.

Obesity, junk food, sedentary lifestyle are major risks.

Type III Diabetes

AKA: Alzheimer's (AD)
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2769828/

"We conclude that the term "type 3 diabetes" accurately reflects the fact that AD represents a form of diabetes that selectively involves the brain…"

Diabetes

History of Diabetes
https://pubmed.ncbi.nlm.nih.gov/31855345/

“Diabetes mellitus is taken from the Greek word *diabetes*, meaning siphon - to pass through and the Latin word *mellitus* meaning sweet. A review of the history shows that the term "diabetes" was first used by Apollonius of Memphis around 250 to 300 BC. Ancient Greek, Indian, and Egyptian civilizations discovered the sweet nature of urine in this condition, and hence the propagation of the word Diabetes Mellitus came into being…”

Diabetes

History of Diabetes (Continued 2)

https://pubmed.ncbi.nlm.nih.gov/31855345/

"…Mering and Minkowski, in 1889, discovered the role of the pancreas in the pathogenesis of diabetes. In 1922 Banting, Best, and Collip purified the hormone insulin from the pancreas of cows at the University of Toronto, leading to the availability of an effective treatment for diabetes in 1922. Over the years, exceptional work has taken place, and multiple discoveries, as well as management strategies, have been created to tackle this growing problem…."

Diabetes

History of Diabetes (Continued 3)
https://pubmed.ncbi.nlm.nih.gov/31855345/

"…**Unfortunately, even today, diabetes is one of the most common chronic diseases in the country and worldwide. In the US, it remains as the seventh leading cause of death.**"

Diabetes

Clinical Overview

Type I Diabetes

- AKA: Juvenile Diabetes (Because onset usually occurs in childhood, but term not used as much since now it is accepted that onset can often be in adulthood)

- Autoimmune disease

- Blood tests: the same as Type II (HA1c, fasting blood glucose) but to differentiate I from II, auto-antibodies in the blood are additionally tested, the presence of which generally indicate Type I.

Diabetes

Clinical Overview

Type II Diabetes

- AKA: Adult Onset (term not used as much since now many children have it), Lifestyle Diabetes, “Insulin Resistance” type.

- **Blood tests:**
HgA1c, fasting blood glucose, (random blood glucose if can’t fast), Fasting Insulin

Diabetes

Clinical Overview

Type III Diabetes

- AKA: Alzheimer's Disease (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2769828/ "We conclude that the term "type 3 diabetes" accurately reflects the fact that AD represents a form of diabetes that selectively involves the brain…")

- No lab tests for this yet.

Diabetes
Type II

Causes

1) Dietary stress
2) Sedentary lifestyle
3) Obesity

Diabetes
Type II

Causes

1) Dietary stress: anything that causes insulin release.

Sugars: Desserts, soda, fruit juice. (Even most ketchup has added sugar, it's in everything. Most restaurant food has lots of added sugar not disclosed in the menu.)

Excess refined carbs: Breads, pasta, rice, crackers, chips, etc.

Diabetes
Type II

Fun Fact:
High Fructose Corn Syrup = 50% fructose

Table sugar (sucrose) = 50% fructose.

Causes

1) Dietary stress:

Fructose: (table sugar, sucrose, is 50% fructose)

https://pubmed.ncbi.nlm.nih.gov/30959577/

"Fructose intake is known to induce obesity, **insulin resistance**, metabolic syndrome, and nonalcoholic fatty liver disease…"

Diabetes
Type II

Fun Fact:
High Fructose Corn Syrup = 50% fructose

Table sugar (sucrose) = 50% fructose.

Causes

1) Dietary stress:

Fructose:

A good video discussion about the detrimental effects of excess fructose (comes from regular sugar, sucrose) in the diet.
https://www.youtube.com/watch?v=Lpsmq6S7BMQ

Diabetes
Type II

Fun Fact:
High Fructose Corn Syrup = 50% fructose

Table sugar (sucrose) = 50% fructose.

Causes

1) Dietary stress:

Fructose:

High fructose corn syrup and regular sugar have the **SAME** amount of fructose. They are equally bad.

Diabetes
Type II

Causes

2) Sedentary lifestyle:

Increased risk of high junk food diet and obesity.

Diabetes
Type II

Causes

3) Obesity:

https://pubmed.ncbi.nlm.nih.gov/33561645/

"...long-term obesity and overnutrition develop into insulin resistance…"

Diabetes
Type II

Signs and Symptoms

https://diabetes.org/about-diabetes/type-2

- Urinating often
- Feeling very thirsty
- Feeling very hungry—even though you are eating
- Extreme fatigue
- Blurry vision
- Cuts/bruises that are slow to heal
- Tingling, pain, or numbness in the hands/feet

Diabetes
Type II

Labs to order:

Hemoglobin A1c

Fasting blood glucose

(Random blood glucose)

Fasting Insulin

Diabetes
Type II

Labs Findings and Interpretation:

Hemoglobin A1c (HbA1c) will tend to be HIGH.

HbA1c **normal** range:

4.0%-5.6%

Diabetes
Type II

Labs Findings and Interpretation:

Hemoglobin A1c (HbA1c) will tend to be HIGH.

HbA1c ***pre*-diabetes** range:

5.7 - 6.4%

Diabetes
Type II

Labs Findings and Interpretation:

Hemoglobin A1c (HbA1c) will tend to be HIGH.

HbA1c **diabetes** range:

6.5% and higher

Diabetes
Type II

What is HgA1c? (1)

https://www.ccjm.org/content/83/5_suppl_1/S4

"HbA1c was first discovered in 1955, but elevated HbA1c levels in diabetes patients were not noted until 1968.[1] Another 8 years passed before HbA1c was correlated with blood glucose values in hospitalized patients with diabetes and was proposed for monitoring glycemia…"

Diabetes
Type II

What is HgA1c? (2)

"…Biochemically, HbA1c forms through a nonenzymatic reaction in which glucose attaches to the valine amino terminal of one or both beta chains of hemoglobin A. This compound can be separated out from nonglycated hemoglobin and from other glycated hemoglobin molecules through various methods, such as high performance liquid chromatography or immunoassay…"

Diabetes
Type II

What is HgA1c? (3)

"…The HbA1c level is affected by the blood glucose concentration, the duration of red blood cell (RBC) exposure to varying concentrations, and RBC quantity. **HbA1c most accurately reflects the previous 2 to 3 months of glycemic control** in the setting of the usual RBC life span of 120 days.[9] As a relatively long-term indicator of glycemic control, it may not accurately represent acute improvements or deteriorations in glycemia. Recent factors affecting glycemia must be considered, as HbA1c represents a weighted average glucose with 50% contribution from the preceding month.…"

Diabetes
Type II

What is HgA1c? (4)

"…HbA1c must be interpreted with caution. In non-pregnant adults, HbA1c is often falsely low in conditions that reduce the number of glycosylated RBCs, such as hemolysis, splenomegaly, chronic kidney disease, cirrhosis, hemorrhage, blood transfusions, use of erythropoiesis-stimulating agents, and certain hemoglobinopathies (ie, HbS, HbC, HbF). Alternately, HbA1c is elevated in other hemoglobinopathies and in conditions that result in decreased RBC turnover such as iron or vitamin B12-deficiency anemia."

Diabetes
Type II

Fun Fact:

dL = deciliter

1 liter = 10 deciliters

Labs Findings and Interpretation:

Fasting Blood Glucose will tend to be HIGH.

Normal range:

70-99 mg/dL

Diabetes
Type II

Labs Findings and Interpretation:

Fasting Blood Glucose will tend to be HIGH.

Pre-Diabetes range:

100-125 mg/dL

Diabetes
Type II

Labs Findings and Interpretation:

Fasting Blood Glucose will tend to be HIGH.

Diabetes:

126 mg/dL or higher

Diabetes
Type II

Labs Findings and Interpretation:

Random **Blood Glucose** will tend to be HIGH.

Diabetes = **200 mg/dL or higher**

Diabetes
Type II

Discussion

https://academic.oup.com/clinchem/article/55/5/850/5631768

"...changes in the way blood samples are handled before laboratory measurement of glucose need to be strongly considered. Universal adoption of methods that inhibit glycolysis would be expected to improve the precision and utility of glucose measurements, but it might substantially increase diagnoses of diabetes unless compensatory changes in diagnostic cutpoints were made."

Diabetes
Type II

Discussion

To avoid laboratory error and random stress events in the patient leading to false positive diagnosis, make sure to see a high glucose blood test on at least two separate occasions before diagnosing diabetes.

Diabetes
Type II

Fun Fact:

uIU = micro-international unit

1 IU of insulin = 0.0347 mg

Labs Findings and Interpretation:

Fasting Insulin will tend to be HIGH.

Normal = 2.6-24.9 uIU/mL (Labcorp)

Optimal = <10 uIU/L

Extra credit = <5 uIU/mL

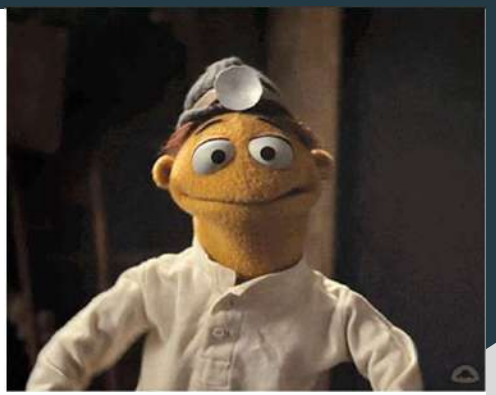
Diabetes
Type II

Labs Findings and Interpretation:

Fasting Insulin why's it important?

According to Dr. Robert Lustig, MD, this lab is the single most important lab to order because high insulin is correlated not only with insulin resistance and Type II diabetes, but also with heart disease, cancer, and dementia.
https://youtu.be/Lpsmq6S7BMQ?si=6j3U53l2anZfEiSe

Diabetes
Type II



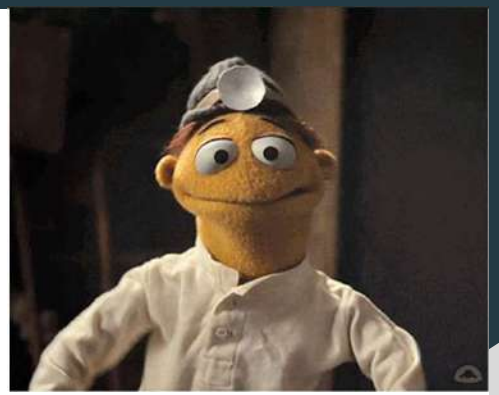
Medical vs Alternative Treatment Options:

Medical: (1)

Metformin: aims to lower glucose production by liver and make body more sensitive to insulin.

Possible side effects: Can cause B12 deficiency.

Diabetes
Type II



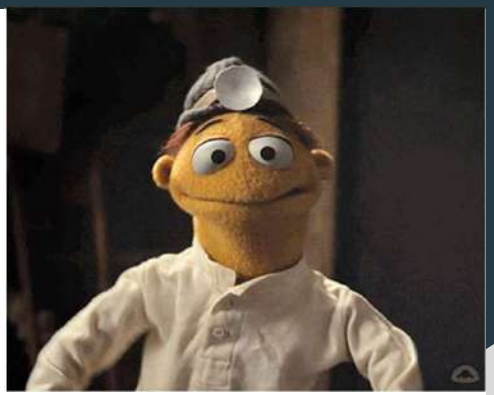
Medical vs Alternative Treatment Options:

Medical: (2)

Sulfonylureas and Glinides: aims to increase pancreas secretion of insulin.

Possible side effects: Can cause low blood sugar and weight gain.

Diabetes
Type II



Medical vs Alternative Treatment Options:

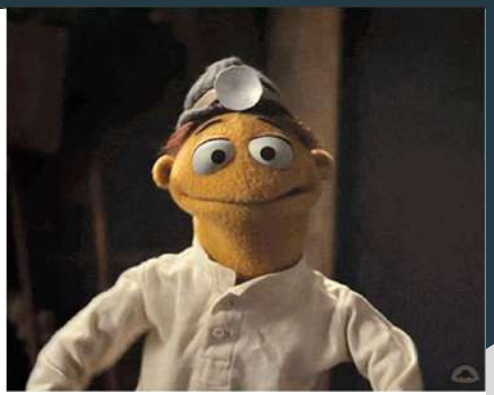
Medical: (3)

Attention Chiropractors!

Thiazolidinediones: aims to make the body more sensitive to insulin.

Possible side effects: Increased risk of congestive heart failure, bladder cancer, **bone fractures**, weight gain.

Diabetes
Type II



Medical vs Alternative Treatment Options:

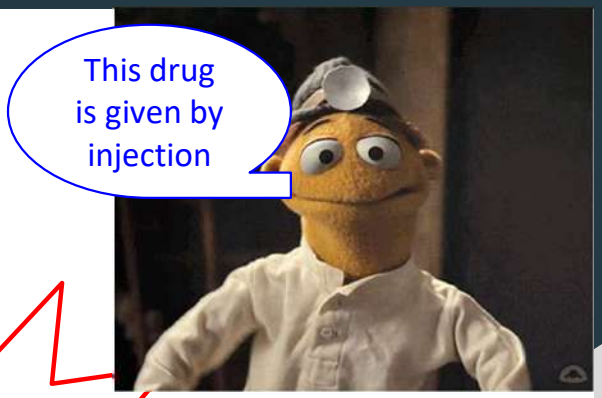
Medical: (4)

Attention Chiropractors!

DPP-4 Inhibitors: aims to reduce glucagon release which in turn would increase insulin secretion.

Possible side effects: Increased risk of pancreatitis and **joint pain**.

Diabetes
Type II



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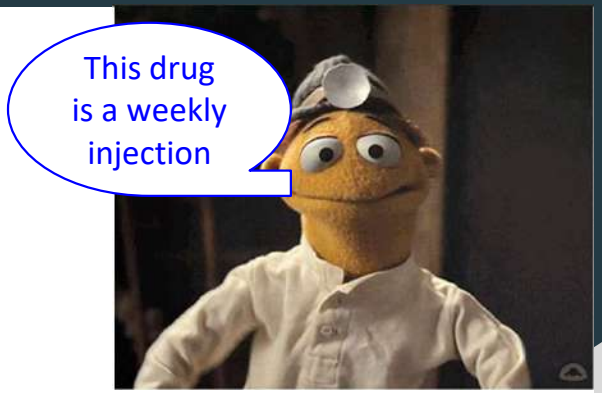
Medical vs Alternative Treatment Options:

Medical: (5.1)

Glucagon-Like Peptide-1 (GLP-1) Receptor Agonist: (ie. **Ozympic**) delays gastric emptying and inhibits glucagon production from pancreatic α-cells.

Possible side effects: nausea, vomiting, and diarrhea, dizziness, mild tachycardia, infections, **headaches**, and dyspepsia.

Diabetes
Type II



Medical vs Alternative Treatment Options:

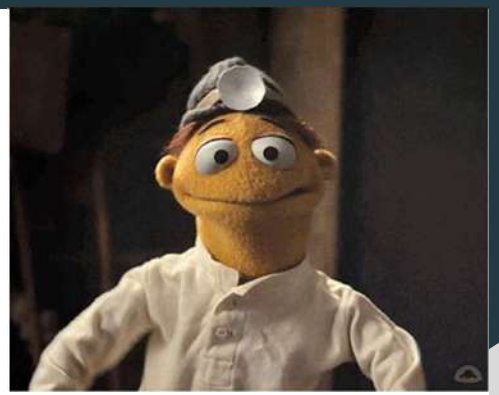
Medical: (5.2)

Glucagon-Like Peptide-1 (GLP-1) Receptor Agonist: (ie. **Ozympic**)

Video discussion about the pros and cons of these drugs:

https://www.youtube.com/watch?v=zcBrvJzPiWU

Diabetes
Type II



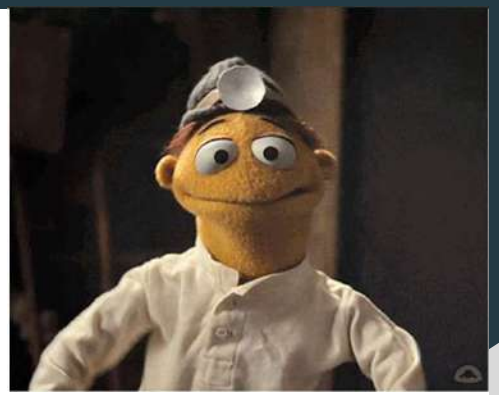
Medical vs Alternative Treatment Options:

Medical: (6)

Sodium-Glucose cotransporter-2 (SGLT2) Inhibitors: aims to cause the kidney to spill blood glucose into the urine.

Possible side effects: Increased risk of yeast infections, urinary tract infections, low BP, high cholesterol, and gangrene.

Diabetes
Type II



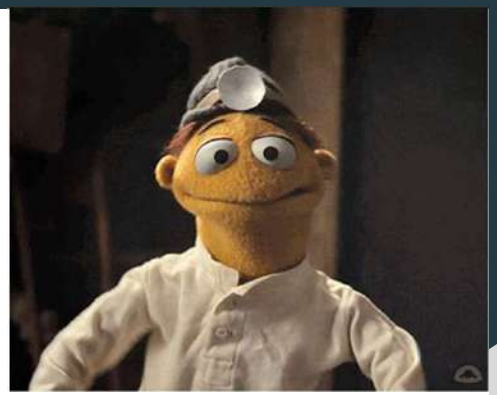
Medical vs Alternative Treatment Options:

Medical: (7.1)

Insulin Therapy: injections that aim to replace the body's normal insulin levels when the pancreas stops producing enough.

Possible side effects: Hypothetically none if perfectly administered in the exact amount needed at the exact time needed.

Diabetes
Type II



Medical vs Alternative Treatment Options:

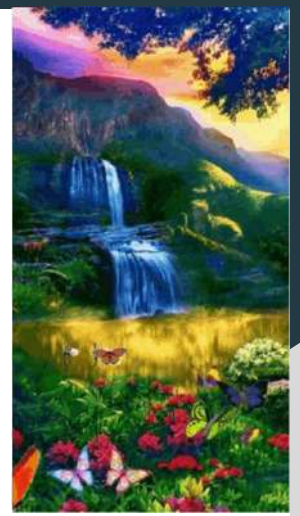
Medical: (7.2)

Attention Chiropractors!

Insulin Therapy:

Symptoms of Overdose: **Headache**, fatigue, brain fog, tremors, sweating, insomnia, seizure, disorientation, coma.

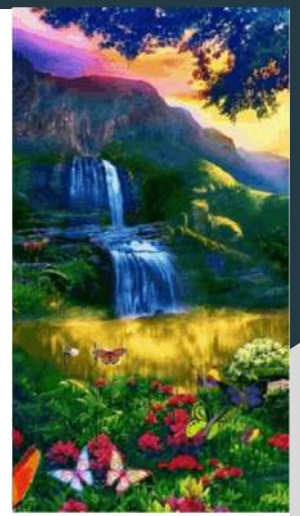
Diabetes
Type II



Medical vs Alternative Treatment Options:

Alternative: (1) To be safe, alternative treatments for diabetes should be done with close cooperation with a medical practitioner who can prescribe and manage necessary medications until the Type II diabetes has been improved enough to warrant medical reduction or cessation of diabetic medications.

Diabetes
Type II

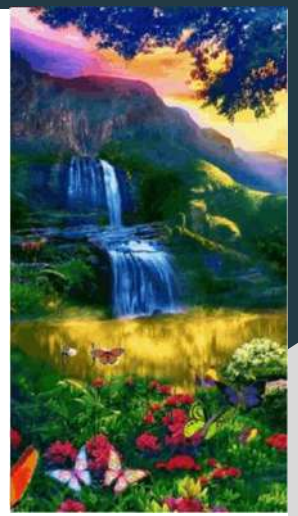


Medical vs Alternative Treatment Options:

Alternative: (2) Reduce or remove concentrated sugars and refined carbohydrates like bread, rice, and pasta from the diet.

Find the patient's carbohydrate tolerance with the Two Week Test: https://philmaffetone.com/2-week-test/

Diabetes
Type II



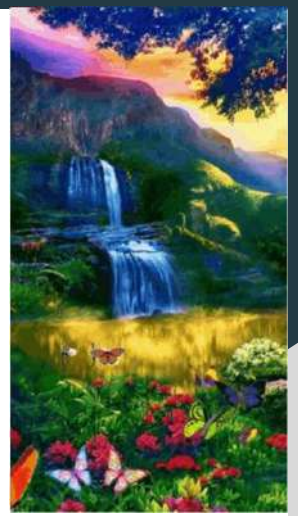
Medical vs Alternative Treatment Options:

Alternative: (3.1) Encourage the patient's muscle fibers to convert from white to red fibers.

White muscle fiber = Type II anaerobic, fast twitch, or *sugar burning fibers*.

Red muscle fiber = Type I aerobic, slow twitch, or *fat burning*.

Diabetes
Type II



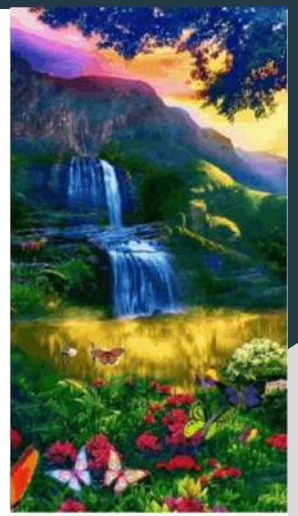
Medical vs Alternative Treatment Options:

Alternative: (3.2)

White muscle fibers are white because they have few blood vessels, and thus mainly use anaerobic **sugar burning**.

Red muscle fibers are red because they have many blood vessels that supply ample oxygen for aerobic **fat burning**.

Diabetes
Type II

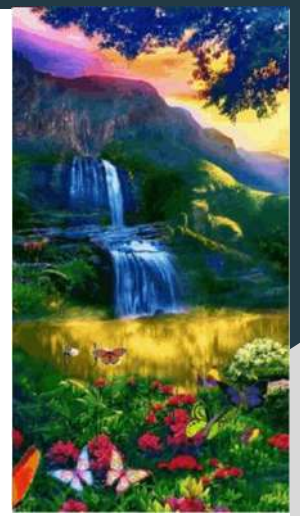


Medical vs Alternative Treatment Options:

Alternative: (3.3) Encourage patient's white muscle fibers to convert into red muscle fibers via **maximal aerobic function exercise.**

Find their optimal aerobic zone via VO2 max testing equipment: https://korr.com/products/vo2-max-testing-system/

Diabetes
Type II



Medical vs Alternative Treatment Options:

Alternative: (3.4) Encourage patient's white muscle fibers to convert into red muscle fibers via maximal aerobic function exercise.

Or, find a close estimation of it via Dr. Phil Maffetone's 180 Formula: https://philmaffetone.com/180-formula/

Thanks for taking CE Seminars with Back To Chiropractic.

I hope you enjoyed the course. Please feel free to provide feedback.

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