Lean mass determines your body's carb capacity

Activity level determines depletion

All Carbohydrates

C6 = Simple Sugar

Potato starch = 100% GLUCOSE

FRUCTOSE

GALACTOSE

C12 = Disaccharide

SUCROSE

LACTOSE

MALTOSE

Fibers pass to 'hind gut' then ferment or pass through

Fermentable

Pectins

Inulin

Oligofructose

Guar-gum

Non-fermentable (in humans)

Cellulose (a form of glucose)

Lignins

More C's = Polysaccharides, Starch, or Complex Carbs

90% of carbs absorb in the upper digestive tract where little or no bacteria live.

Short chain fat(ty-acids) provide LESS calories than carbs. These fats are crucial for gut health. SEE FUEL ZONE, CIRCLE SCHEMATIC

GOALS

1) Match carb intake to depletion

2) Eat fermentable carbs and SCFA's to protect and feed cells of intestines (enterocytes)

3) Eat quality protein to avoid putrefaction

4) Limit/avoid PUFA's to reduce inflammation and oxidative stress. (free radical chain reactions)

2 Types of Fermentation

1) Saccahrolytic

2) Putrefactive

EXHALED

Stomach | Small intestine | Colon → Sloughed off Enterocytes, Unabsorbed Food (ash), Bacteria

1) Direct gases (burps)

2) Indirect gases

- Gases produced within cells, e.g. CO_2, NO

- Gases absorbed thorugh intestines

ABSORBED

Glucose

Fructose

Galactose

SCFA'S Eaten

Peptides

PRODUCED

SCFA'S

B Vitamins

Vitamin K

RESORBED IN COLON

Water*

* High doses of Mg pulls water back - or resorbs it, to relieve constipation.**

** The four macrominerals, potassium, sodium, calcium, magnesium are the 'master controllers' of the electrical properties/health of your cells.

See Lesson 4: Muscles, Lightning, Brain Cells and Water

Part I: Usain Bolt, Electricity, Potassium, and High Intensity Muscle Contractions

Absorbed then processed by liver.

C6's: Glucose, Fructose, Galactose

Peptides (Avg C5)

SCFA's C2, C4... to C12

Ideally, you absorb only what your cells 'want' to eat

You have not yet eaten. Your body eats when cells eat C6 and C2.

To heart via thoracic duct, joining lymph

LCFA's

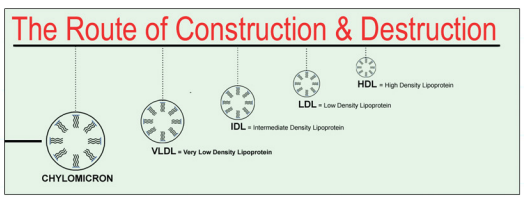
C14 to C22

95% of fat is:

1) NOT absorbed with all other nutrients

2) NOT broken down like carbs or protein

3) Delivered directly to heart in a chylomicron



Also Absorbed

Sulfurous gas - via putrefactive proteins

Methane (CH_4)

Everything is metabolized as C2 (fat) or C6 (carb)

Fermentation = Anaerobic

C6 --> 2 Lactic acids

19x more carbs used during high intensity exercise, than during low or moderate levels.

Combustion = Aerobic

$C_2 + O_2 \rightarrow CO_2$

Fuel + O_2 --> CO_2 + H_2O + Heat

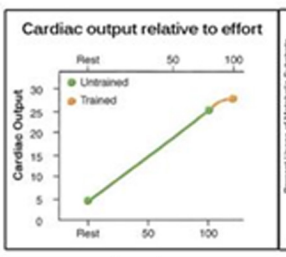
Final Fuel = C2 = Vinegar

Frame 1: "Cardiac output is identical in trained athletes and couch potatoes (untrained humans) at virtually all intensity levels."

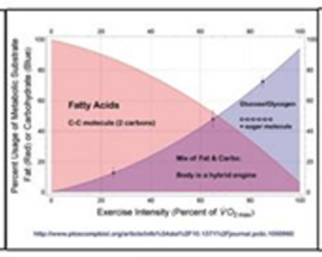
Frame 2: "Fat is the primary fuel for the body at rest and during low, moderate, and moderately high intensity levels."

Frame 3: "Training does nothing to improve one's ability to increase cardiac output or increase oxygen consumption." (This applies to any given intensity level except maximum intensity, which is unsustainable.)

Frame 4: "Fat is the main fuel for the heart." A strong and therefore healthy heart utilizes fat as its main fuel. As it begins to weaken and fail, carbohydrate replaces fat as the primary fuel. But progressively toward failure, each fuel is used less and less.



Frame 1



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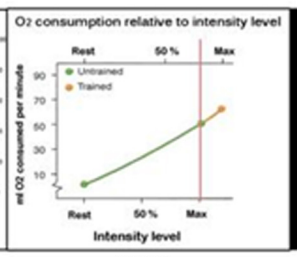
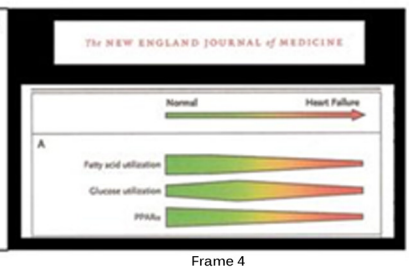


Frame 3



Frame 4