HONEY:
REVOLUTIONARY MEDICINE FOR MIND AND BODY – SEPARATING FACT FROM FICTION

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The work of these industrious insects . . .
and the floral splendor of creation . . .

Violet

Jasmine

Golden Poppy

Goldenrod

Amaryllis

Lily
combine to produce over 300 varietals of HONEY in the USA and Canada
If *HONEY* has so many healthful benefits, why haven’t we heard about this before?
“Honey is a medicine without a profit”

Honey Research Is Limited

- Honey is a non-standardized product
- Many small, observational studies
- Few randomized, controlled population studies
Use of Honey Is Considered

- Alternative Medicine
- Outside the Mainstream of Clinical Practice
- Preventative versus Therapeutic
Inclusion in Clinical Practice Takes Time
Why HONEY?
Why *HONEY*?

1. *HONEY* regulates blood sugar and insulin levels
2. *HONEY* is the Gold Standard brain fuel
3. *HONEY* prevents or eliminates metabolic stress
4. *HONEY* promotes *recovery* sleep and fuels the brain during the night
5. *HONEY* enhances immune system function and provides other miscellaneous benefits
HONEY regulates blood sugar and insulin levels
The sugars in *Honey* end up in the liver rather than in the blood.

*Honey* contains substances needed to make a protein in the liver that regulates insulin release from the pancreas (HISS).
HONEY is therapeutic for... 

folks with glucose intolerance, insulin resistance, diabetes, and reactive hypoglycemia.
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HONEY is the Gold Standard Fuel for the Brain
The primary source of energy for the brain is **GLUCOSE** that the brain gets from

- The circulating blood (total blood glucose at any one time is only 5 grams)
- The liver glycogen reserve (total of 75 grams)
At rest, 10 grams of glucose are needed each hour to provide energy for the

- Brain – 6 ½ grams
- The kidneys & red blood cells – 3 ½ grams

* * *

A full liver glycogen tank provides the brain with only enough fuel for 7 ½ to 8 hours
HONEY produces more liver glycogen than any other food, gram-for-gram

HONEY contains the perfect ratio of fructose to glucose – nearly 1:1 – necessary to produce and store glucose in the liver

One tablespoon of HONEY will result in the formation of ~ 17 grams of liver glycogen
The Importance of Liver Glycogen

- Without it, the brain, kidneys and red blood cells would run out of fuel in ~ 30 minutes or less during moderate activity
- The release of glucose from the liver fuels the brain and prevents or eliminates *metabolic stress*
Liver Glycogen Yield from

1 Tbsp of HONEY =

Calculations of Liver Glycogen Yield (LGY) taken from *Feed Your Brain First* (TGBTGBooks.com, LLC 2013)
Liver Glycogen Yield from

1 Tbsp of HONEY = 6 Tbsp of Peanut Butter
Liver Glycogen Yield from

1 Tbsp of HONEY =

1/4 cup of Raisins or Dates
Liver Glycogen Yield from

1 Tbsp of HONEY = ~ 6 oz of Chicken
Liver Glycogen Yield from

1 Tbsp of HONEY =

3-4 oz Halibut, Pork chop or Hamburger
Liver Glycogen Yield from

1 Tbsp of HONEY = 3 cups of Mashed Potatoes
Liver Glycogen Yield from

1 Tbsp of HONEY = 4 cups of Carrots
LGY from Ideal Breakfast

2 Eggs = 20 grams
2 Strips Bacon = 4 grams
Coffee with Cream = 2 grams

TOTAL LGY = 75 grams

1 cup OJ = 18 grams
Honey Wheat Toast & Honey = 19 grams
1 cup Fruit = 12-15 grams
LGY from Your Breakfast?

**TOTAL LGY = 6 grams**

*Donut or pastry = 4 grams*

*Coffee with Cream = 2 grams*
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HONEY prevents or eliminates

METABOLIC STRESS
METABOLIC STRESS

- Is the release of cortisol and adrenalin from the adrenal glands
- Is initiated by the brain when it senses its fuel supply is depleted
- Is necessary to make new fuel for the brain (neuro-protective)

[Sometimes referred to as the “Fight or Flight” response]
METABOLIC STRESS

- Is easily prevented when you keep fuel in the tank* and avoid or eliminate brain hunger

* The brain’s fuel tank is the liver which stores glucose as glycogen
METABOLIC STRESS

- Is also initiated by over-consumption of glucose-rich foods
Over-consumption of Glucose-rich Foods Causes

- Rapid rise in blood glucose
- Release of excessive levels of insulin which drive glucose into the cells
- Increased triglyceride formation
- Little or no liver glycogen formation
- Repeated / chronic brain starvation
- *Increased and recurrent metabolic stress*
Prevent **METABOLIC STRESS**

- By avoiding over-consumption of glucose rich foods:
  - Breads
  - Pasta
  - Potatoes
  - Soda
  - Beverages
  - Cereal
Each Week the Average Person Consumes

- About 3 pounds (1360 grams) of additional sugar and HFCS – more than 6 times the amount recommended by the AHA
Each Day the Average Person Consumes

- 55-73 grams of fructose – more than the liver can metabolize and store at any one time
The Cumulative Result Is

- Chronic oxidative stress within the cells of the body, especially the brain cells
The Consequences of Metabolic Stress

The Metabolic Stress Continuum

Age- and Diabetes-related Chronic Inflammatory Diseases
Atherosclerosis, cardiovascular disease, arthritis, asthma, thyroid disease, retinopathy, neuropathy, kidney disease, Neurodegenerative conditions, Alzheimer’s Disease, Motor Neuron Disease, Parkinsonism

The Metabolic Syndrome
Glucose intolerance, Type 2 Diabetes, Central Obesity, Increased Blood Pressure, Elevated Triglycerides, Decreased HDL Cholesterol

Insulin Resistance
Fatigue, Weight Gain, Increased Triglycerides, Depression

Metabolic Stress

Depleted Brain Fuel Reserve
- A Hungry Brain

Medical treatment usually begins later

Prevention begins here
Results of *HONEY* Consumption

- Lower blood sugar (blood glucose)
- Less insulin released from pancreas
- Less formation of triglycerides (fats)
- More glucose stored in the liver as glycogen
- Brain’s fuel supply is preserved
HONEY Prevents Metabolic Stress

By

- Decreasing or eliminating the repeated excessive release of cortisol and adrenalin from the adrenal glands initiated by brain hunger
Preventing Chronic METABOLIC STRESS Means

- Reduced Risk for Obesity & Diabetes
- Better Weight Control by regulation of appetite hormones

Preventing Chronic METABOLIC STRESS Means

- Reduced Risk of Thyroid Disease (Hypothyroidism)
- Reduced Risks for Osteoporosis, Menopausal Conditions, Infertility and Gastro-intestinal Diseases

2. Demidova, OR, “The Role of Thyroid Hypofunction in Development of Metabolic Syndrome,” *Ter Arkh* 2009; 81(4) 69-73
4. “Glucocorticoid Induced Osteoporosis,” Bone and Tooth Society of Great Britain, the National Osteoporosis Society and the Royal College of Physicians (Pamphlet)
Preventing Chronic METABOLIC STRESS Means

- Reduced Risks for Hyperlipidemia
- Reduced Risks for all of the Age- and Diabetes-related Chronic Inflammatory Conditions

Preventing Chronic METABOLIC STRESS Means

- Improved cardiovascular health

HONEY Lowers the Risks of Cardiovascular Disease By

- Reducing cholesterol and triglyceride levels and increasing HDL (good) cholesterol
- Reducing inflammatory damage to blood vessels (lowers prostaglandins)
- Reducing homocysteine levels

Preventing Chronic
**METABOLIC STRESS** Means

- Improved functional capacity for learning and memory

How to Prevent METABOLIC STRESS

Keep fuel “in the tank”
HONEY initiates sleep and ensures adequate brain fuel for 7 to 8 hours of recovery sleep
HONEY prevents METABOLIC STRESS during the night, which

- Improves sleep quality and duration
- Reduces the risk for all the metabolic conditions associated with sleep deprivation* or interrupted sleep
- Increases REM (dream) sleep

* Less than 6 hours of sleep each night
Sleep Depravation or “Fractured” Sleep is Associated with

- Increased obesity
- Increased insulin resistance and diabetes
- Increase in rate of strokes by factor of 4
- Accelerated memory loss and Alzheimer’s disease
- Increased osteoporosis
- Increase in heart disease and 48% increase in cardiac-related deaths
- Increased risk for colon cancer

A decrease in REM sleep with age is associated* with these conditions and diseases:

*Association is not causation but can indicate the likelihood of an event or condition being related to risk of another disease or condition
Increasing REM Sleep Means

- Reduced Risk for Sleep Disordered Breathing (sleep apnea)
- Reduced risks for Alzheimer’s disease, Parkinsonism, and other Neuro-degenerative diseases
- Reduced risk for depression

The reduction or prevention of nocturnal \textit{METABOLIC STRESS} is the primary benefit of consuming \textit{HONEY} before bedtime, impacting every system, organ, and tissue in the body.

\textit{“Sleep with HONEY. . . Its good for your health!”}
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Additional Benefits of *HONEY*
HONEY improves immune system function

- Reduces symptoms of allergies
- Has powerful anti-cancer properties

The Known Anti-cancer Properties of Honey

- *Honey* stimulates the production of antibodies, lymphocytes, monocytes and other natural cancer killer cells
- *Honey* inhibits the production of cortisol
- *Honey* reactivates the mitochondria
- *Honey* inhibits the mutagenic ability of cancer cells

Topical Application of *HONEY* has Powerful Antibiotic and Wound Healing Benefits

- *HONEY* (at concentrations of only 3 to 16%) is effective in killing over 60 of the most pathogenic bacterial strains including MRSA and other antibiotic-resistant strains

- *HONEY* prevents the growth of biofilms which inhibit wound healing

As an Antibiotic

- **HONEY** reduces risks of gingivitis and periodontal disease
- **HONEY** kills *H pylori*, the bacteria in the stomach responsible for gastric ulcers
- Systemic use not effective

HONEY and Aging

- HONEY reduces the inflammatory processes that accompany aging
- HONEY improves sleep quality and duration
- HONEY reduces the risk factors for the conditions and diseases associated with the metabolic syndrome

The positive effect of *HONEY* consumption on blood glucose seems to be more consistent in older individuals and/or in individuals with advanced glucose intolerance due to progressive insulin resistance.
Additional Benefit from *HONEY*

- Fructose from *HONEY* “recycles” the enzyme in the liver necessary for detoxifying alcohol

HONEY Consumption Benefits Summarized

- HONEY regulates and controls blood sugar and insulin levels
HONEY Consumption Benefits Summarized

- HONEY is the gold standard food for rapid formation of liver glycogen, which is the primary source of brain fuel.
HONEY Consumption Benefits Summarized

- HONEY reduces or eliminates Metabolic Stress
HONEY Consumption Benefits Summarized

- HONEY promotes Recovery Sleep
HONEY Consumption Benefits Summarized

- HONEY prevents disease for some, lowers risks of disease for others, and improves or restores health for all
How Much *HONEY* Is Enough?

The regular consumption of 3 to 5 tablespoons per day of natural unfiltered *HONEY* does all of this and more without side effects, risks or negative health consequences.

* Health benefit information from research studies used in this presentation relates to natural unfiltered honey or specific honey varietals. Processed and blended honey may or may not provide similar benefits. Further study is needed to determine if health benefits are applicable to processed honey.
The Public Health Benefit . . .

The total direct and indirect costs for the diseases and conditions associated with the metabolic syndrome discussed in this presentation are over $1 trillion / year in the United States and over $50 billion / year in Canada.

In other words, the population adjusted direct and indirect costs in the U.S. are about double what they are in Canada with prevalence rates being about the same in both countries (~20%).
The Public Health Benefit . . .

A reduction in the prevalence of these diseases by 1% translates to a $10 billion / year savings in the U.S. and a $500 million / year savings in Canada

- at a cost of less than $20 / month per person.
THANK YOU

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