Elevated Oestrogen Levels
Negative Health Outcomes

Submission No. 155
(Inq into Obesity) MC 23/12/08

What are the Major Adverse Health Outcomes.

1. Alzheimer's **(irreversible)**
2. Dementia **(irreversible) Alzheimer's related**
3. Dementia **(irreversible) not Alzheimer's related**
4. Dementia **(reversible)**
5. Diabetes-2 **(reversible)**
6. Diabetes-3 (Gestational Diabetes) **(normally self regulating) (reversible)**
7. Hypo-Thyroid conditions **(reversible)**
8. Obesity **(reversible)**
9. Obesity (Gestational) **(sometimes self regulating, not assured) (reversible)**
10. Loss of skin pigmentation greatly increasing the risk of Skin Cancer **(reversible)**

What are the major contributors to Elevated Oestrogen Levels

Pharmaceutical Drugs

A. HRT
B. Contraceptive Pill

Non-Oestrogenic Pharmaceutical Drugs "Alzheimer's"
A. Statins (Cholesterol Lowering Drugs) if they cross the Blood Brain Barrier.

Dietary Foods

A. Soy Phyto-estrogens

Lifestyle

A. Age related reduction in Testosterone levels resulting in higher Oestrogen levels in later life.
B. This used to be the major initiator of Dementia and Alzheimer's before Pharmaceutical Drugs and Soy come on the scene.

Alzheimer's will become an epidemic if this Drug and Dietary problem is not urgently addressed.

1. Alzheimer's

How does this terrible Disease start and how does it propagate.
(a) A reduction of energy in the Brain Cells 'mainly Neurons'
(b) Reduced energy levels in the Neurons increases the synthesis of Amyloid Precursor Protein. (APP)
(c) Lowered energy levels are caused by decreased levels of CoQ10.
(d) Lowered CoQ10 levels are caused by low Cholesterol levels.

(e) Lowered Cholesterol output levels from the Astrocytes is caused by a build up of Cholesterol in the Astrocytes shutting down the production of Cholesterol.
(f) The build up of Cholesterol in the Astrocyte is the result of low Transporter Protein levels to transport Cholesterol out of the cell.
(g) The transcription of these Transporter Proteins from the DNA is facilitated by Retinoid X Receptor (RXR) requiring vitamin A, and the Liver X Receptor (LXR) this in turn is regulated by the action of the active Thyroid Hormone T3.
(h) Low vitamin A levels equate to low cholesterol levels in the Brain
(i) Low T3 levels equate to low Cholesterol levels in the Brain.
(j) Low T3 levels are primarily the result of low Tyrosine levels, but very low Selenium levels may inhibit the conversion of T4 to T3 at cellular level.
(k) Low Iodine levels can also reduce T4 & T3.
(l) In the rest of the body low T3 and or vitamin A levels equate to very high LDL and very low HDL levels (Atherosclerosis).
(m) In the Brain Cells especially Neurons the levels of APP are controlled by the action of Isoprenoids.
(n) Isoprenoids break down APP keeping the synthesis of 'Amyloid beta 42 Protein' to safe levels. Amyloid beta 42 Protein is a small fragment of APP.
(o) CoQ10 is an Isoprenoid.
(p) Low T3 levels greatly increase the levels of Amyloid beta 42 Protein in the cells.
(q) Elevated Zinc levels in the cytosol of Neurons is toxic and triggers a Calcium cascade coupled with Amyloid beta 42 Protein that engulfs the cell, finally destroying the cell.
(r) Elevated Zinc levels in the cytosol is one of the known triggers for cascade.
(s) Reactive Oxygen Species (ROS) can initiate PKC with a similar β-Amyloid 42 cascade.
(t) Insulin also initiates PKC with a similar β-Amyloid 42 cascade.
(u) An accumulation of Copper ions can induce Oxidative stress initiating PKC with a similar β-Amyloid 42 cascade..
(v) There are undoubtedly more as yet unidentified triggers.
(w) The cell disintegrates and all that is left is this Plaque consisting of β-Amyloid 42 Protein and Calcium.
(x) This Plaque is so evident in the Brains of Alzheimer;s Patients and is the method of identifying this Disease.
(y) This loss of the Neurons and other Brain Cells cannot be reversed so Alzheimer's is irreversible.
(z) Zinc levels are kept in homeostasis by Magnesium
(aa) What is the reason for low Magnesium levels.
(bb) High Insulin levels as a result of a high Carbohydrate diet.

Other factors that influence energy levels in the Brain and other cells is heavy metal poisoning. The two major offenders are Mercury and Lead and a comprehensive test is needed to accurately determine the real picture. If you may have been exposed to these

heavy metals it would be advisable to have tests done. Heavy metals can be leached out of the body with the right protocols.
Reduced Oxygen levels are also a major problem.

The message in the above if you wish to lesson your chances of acquiring this disastrous Disease make sure you have a regular Blood Test for TSH and T3.
Be sure to stipulate you must get the Clinical levels of T3 which should not fall below (4) so as to avoid low Cholesterol levels in the Brain.
This is likely to be the major cause of this Disease.
Another Pharmaceutical that is prescribed like lollies is Statins for high Cholesterol. Statins have some beneficial and also some detrimental effects on Alzheimer's.

The Apo-E4 Gene is listed as the major hereditary link to Alzheimer's but My research shows low T3 levels as the major factor. Apo-E4 Proteins may lead to increased oxidative stress but I cannot find a link to increased Amyloid Precursor Protein production. I think the most likely link is those with the Apo-E4 Gene are more prone to elevated Oestrogen levels in later life.

2. **Dementia (non Alzheimer's).**
3. **Dementia (Alzheimer's related).**
4. **Dementia (low levels of dopamine).**

What is the cause of this Disease.
(a) Low Tyrosine levels resulting in low levels of the fast Neuro-transmitter Dopamine.
(b) Memory is stored in the Prefrontal Cortex 'PFC' as digital ROM (Read Only Memory).
(c) This Memory is accessed by a threshold level of Dopamine.
(d) It takes a much higher level of Dopamine to "store" or write a new message or modify an existing stored message . Permanent long term storage is referred to as "long term potentiation" LTP
(e) Now if your Dopamine levels are down you can read existing stored Memories right back to childhood but today's and recent Memories have not been stored so you cant read them.
(f) This is the reality of Dementia
For further information on this aspect refer to the brilliant article in AAAS Science Magazine 06-10-2006.
This article was produced by Randall C. O'Reilly and titled:-***Biologically Based Computational Models of High Level Cognition.***
(g) Dementia is reversible at present by supplementing with Tyrosine and or Phenylalanine with the necessary cofactors including Selenium.
(h) Improvement in cognition is quite noticeable from the first day.

(i) In the future the Medical Profession may come up with a treatment to elevate Testosterone levels and thereby lower Oestrogen levels.
(j) This would be a fine balancing act and would impact severely on existing HRT programs and the Contraceptive Pill and how come this was not previously investigated.

(k) Will the Pharmaceutical and Medical put up their hands to take responsibility for the people that have been put in no mans land, and with continual low T3 levels wind up with Alzheimer's. ! Not likely as the Law has been structured to protect them right or wrong.
(l) Also the relentless push to use Soy by the Medical Profession, Government Health Departments, Nutritional Advisers, Food Manufacturers, Obesity Industry and Diet Books is a real worry and should stop.
(m) ? Who takes responsibility for all the hype encouraging the use of Soy with all the so called benefits.
(n) Nobody informed the public that Soy could wreak such havoc with our health.
(o) I have quite considerable trouble convincing people of the damage and turmoil Soy has inflicted on myself and family.
(p) My Memory has been severely affected especially visual Memory.
(q) I don't see any of these gurus that so steadfastly push the health benefits of Soy coming to my assistance.

5. Diabetes-2

(a) Low Tyrosine levels result in low Norepinephrine levels in the Pancreas.
(b) Norepinephrine is required to release Glucagon from the alpha cells in the Pancreas.
(c) Glucagon turns off the production of cholesterol.
(d) In the Liver Glucagon turns on beta –Oxidation to break fat down to Acetyl-CoA to make Ketone bodies to fuel major Organs in place of Glucose, also to fuel the Citric Acid Cycle for energy production.
(e) Glucagon is required for Gluconeogenesis "the breaking down of Amino acid fragments to make Glucose" this is how Blood Glucose levels are stabilised when they fall below normal.
(f) Low Tyrosine levels result in low Epinephrine levels in the Liver. Epinephrine is required to breakdown Glycogen stores to Glucose to stabilise Blood Glucose levels.
(g) Low blood Glucose levels send the brain into a panic attack get more in and the only foods that will suffice are Glucose Carbohydrates.
(h) You are now on the roundabout to Glucose Addiction refer to:-
(i) Glucose Addiction ? what is it.

This problem never ever seems to be recognised by any Medical or Health Bodies.

6. Diabetes –3 "Gestational Diabetes".

(a) This condition follows the same pathway as Oestrogen Related Diabetes-2
(b) However the reason for the higher Oestrogen levels are mostly the result of the Pregnancy.
(c) This is why in most cases the condition resolves after Pregnancy.

7. Hypo-Thyroid Conditions

(a) Thyroid hormone Thyroxine T4 is (2) Tyrosine molecules linked together with (4) Iodine atoms added to the bottom segment.
(b) Low Tyrosine levels greatly reduce T4 levels
(c) At cellular level T4 is converted to T3 by the action of the Deiodinase enzyme.
(d) This enzyme is Selenium dependant
(e) This is where Selenium plays its role Thyroid Hormone function.
(f) Reduced T3 levels are indicated as major contributor to Alzheimer's and also Atherosclerosis.
(g) The Medical Profession prescribe Thyroxine for Hypo-Thyroid conditions and never look to see what was actually the cause.
(h) Thyroxine cannot make fast Neuro-transmitters
(i) If Selenium levels are ok then T3 levels should be restored with Thyroxine.
(j) This may save you from Alzheimer;s but not Dementia, Obesity and Diabetes-2.

8. Obesity

(a) Low Tyrosine levels result in low Norepinephrine levels in the Pancreas.
(b) Norepinephrine is required to release Glucagon from the alpha cells in the Pancreas.
(c) Glucagon turns off the production of cholesterol.
(d) In the Liver Glucagon turns on beta –Oxidation to break fat down to Acetyl-CoA to make Ketone bodies to fuel major Organs in place of Glucose, also to fuel the Citric Acid Cycle for energy production.
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9. Obesity (Gestational) "Pregnancy induced elevated Oestrogen levels"

(j) Low Tyrosine levels result in low Norepinephrine levels in the Pancreas.
(k) Norepinephrine is required to release Glucagon from the alpha cells in the Pancreas.

(l) Glucagon turns off the production of cholesterol.
(m) In the Liver Glucagon turns on beta –Oxidation to break fat down to Acetyl-CoA to make Ketone bodies to fuel major Organs in place of Glucose, also to fuel the Citric Acid Cycle for energy production.
(n) Glucagon is required for Gluconeogenesis "the breaking down of Amino acid fragments to make Glucose" this is how Blood Glucose levels are stabilised when they fall below normal.
(o) Low Tyrosine levels result in low Epinephrine levels in the Liver. Epinephrine is required to breakdown Glycogen stores to Glucose to stabilise Blood Glucose levels.
(p) Low blood Glucose levels send the brain into a panic attack get more in and the only foods that will suffice are Glucose Carbohydrates.
(q) You are now on the roundabout to Glucose Addiction refer to:-
(r) Glucose Addiction ? what is it.
(s) After the birth if Oestrogen levels normalise Obesity may gradually subside to a normal weight.
(t) If the Obesity prevails a blood test for TSH & T3 should be sought.

A reflection on Protocols that may greatly assist in these situations.

Gestational Obesity, Diabetes-3, Hypertension and Pre-eclampsia.
At the onset a blood test for TSH & T3 should be sought with a protocol of supplementation for the Mother with Tyrosine to stabilise T3 levels and fast neuro-transmitters.
This should aid both Mother and the Foetus considerably.
Our first Grandson survived only three days as a result of Placental Abruption five weeks premature. An emergency Caesarean saved my Daughter in law KAREN but young JACK was born basically brain dead with only 6-7% capacity due to Oxygen starvation. An unforgettable harrowing experience for us all especially Karen and Dale.

10. Loss of skin pigmentation greatly increasing the risk of Skin Cancer

(a) Low Tyrosine levels low levels of L-Dopa
(b) Low levels of L-Dopa low levels of Skin Pigmentation
(c) Low levels of Skin Pigmentation greatly increased risk of Skin Cancer.

?How does Oestrogen affect Tyrosine levels

(a) Tyrosine levels are controlled by the enzyme Tyrosine Amino-Transferase.
(b) This enzyme is prevalent in the Liver and Kidney.
(c) This enzyme is Hormonally controlled by Oestrogen.
(d) Higher Oestrogen levels release higher levels of this enzyme reducing the levels of Tyrosine in the blood.
(e) As the blood is continually circulating through the Liver and Kidney Tyrosine is being continually broken down to energy components Acetoacetate and Fumarate.

(f) As Tyrosine and its precursor Phenylalanine are sourced from the Diet supplementation is necessary under elevated Oestrogen levels.

Tyrosine and fast neuro-transmitters.

Tyrosine - L-Dopa – Dopamine - Norepinephrine – Epinephrine
Noradrenaline - Adrenalin
Tyrosine - L-Dopa – many steps Skin Pigments - Melanin

Tyrosine and the Thyroid.

Tyrosine many stages Thyroxine (T4) and Triiodothyronine (T3)

Glucose Addiction ? What is it

1. The first signs of this syndrome start with the increased urge to snack between meals.
2. The foods that appeal most are those of the carbohydrate variety.
3. The most appealing is Sugar (sucrose) 50% Glucose-50% Fructose. "This subject matter will be addressed later in this document.
4. Most snack foods contain Glucose Carbohydrates some with added Fructose and or Fat.
5. Sweet tasting foods do have a great appeal to the palate. This is one of the reasons why Glucose and Fructose Carbohydrates constitute the bulk of snack foods. These types of foods are very easy and cheap to manufacture and usually have a long shelf life.
6. The more you eat the more you want to eat.
7. The Manufactured Food Industry relies heavily on this phenomena for its overwhelming success
8. It is not only snack foods that fall into this group. Most Breakfast Cereals fall into this category.
9. So many prepacked foods on the shelves or the freezer of our Supermarkets are loaded with Glucose Carbohydrates.
10. Fructose is also added in some ''LOW GI FOODS" as fructose has been assigned a GI of 19 this lowers the GI index for that food product greatly increasing fat storage .
11. Fruit Juices are the greatest danger for Obesity as Fructose is the fastest way to store Fat.
12. If you are Obese limit Fruit and do not consume Fruit Juices.
13. Do not mix Fruit or Fruit Juices with Glucose Carbohydrates.
14. Do not consume Glucose Carbohydrates if Obese.
15. Fruit does contain some Glucose as well as Fructose, some fruits have higher levels of Glucose.
16. Fat has become the villain so the promotion today is low Fat no Fat varieties. Saturated Fat has become the real villain. Strangely most of the Fat we store is made from Carbohydrates and it all starts off as Saturated Fat.
17. The Carbohydrates we ingest in excess to our energy requirements are stored as Fat. Fructose is No1 the fastest way to store Fat, Sugar (Sucrose) is next No2, Glucose No3, and ingested Dietary Saturated Fat No4.
18. ? Do any of these experts ever advise us that the above is the real case, usually the case is made for the reverse.
19. Combining Fructose with Glucose is a Dietary disaster especially for persons in the risk group for Glucose Addiction. Any book or persons recommending the combination of Fructose with Glucose should be avoided like the plague.
20. The main instigator in this syndrome is **"Insulin"** and it has a partner in this syndrome **"Omega-6 Vegetable Oils".** These Vegetable Oils were looked upon as Healthy but research now shows us they are the major problem in Cancer, Heart Disease and many more. A question mark must surely appear now over Omega-6 Vegetable Oils as Arachidonic Acid has now found to be one of the major initiators of Prostate Cancer.

21. Omega-6 Oils are the fuel for all Inflammatory Diseases including Glucose Addiction. Omega-3 (n3) Oils have and inhibitory effect on the Inflammatory pathway of Omega-6 (n6) Oils. Look at the section "What are the Major Adverse Health Outcomes of Our Present System".

22. Omega-6 (n6) Oils are essential to everyday life without them we would not exist, however it is essential for our health that the other essential Oil Omega-3 (n3) is also present in our diet in a ratio of not less than 1(n3) to 1(n6). High intake of Vegetable Oils in the modern diet has this ratio at closer to 1(n3) to 25-50 (n6). This imbalance is highly pro-Inflammatory. Over 90% of major illness has its origins in Inflammation.
23. Insulin and Omega-6 Oils are our major problem I term them **"The Deadly Duo"**
24. Insulin is released from the beta cells in the pancreas responding to the elevation of Blood Glucose levels.
25. Genetic disposition resulting in a more elevated Insulin response to elevated Blood Glucose levels is the key to Glucose Addiction. (Mostly "O" blood group.)
26. Another associated factor is the Inflammatory response to Insulin in Fat Cells.
27. Fat Cells in the intestinal tract where our nutritional food requirements necessary for our survival, are taken up are affected by this Inflammation.
28. This Inflammation restricts the **uptake** of certain key minerals and other nutrients.
29. The most important mineral for Glucose Addiction is Magnesium and Zinc.
30. As you succumb to the urge to eat more Glucose Carbohydrates the excess to energy requirements is stored as Fat.
31. More Fat Cells in the intestines more Inflammation and less Magnesium taken up.
32. Less Magnesium taken up in the intestine, lower Magnesium levels in the Liver Cells, less Glucose supplied to the blood.
33. Lower blood Glucose levels sends the brain into another panic attack !"get more in".
34. Glucose Carbohydrates are the only food that will lift blood Glucose levels to a satisfactory level to satisfy the brain.
35. These extra Carbohydrates are mostly not required for energy production so they are stored as Fat.
36. More Fat Cells in the intestines less Magnesium uptake.
37. Further reduced Magnesium uptake still lower Magnesium levels in the Liver Cells, less Glucose supplied to the blood.
38. Lower blood Glucose levels greater hunger pangs signalled from the brain, get more Glucose Carbohydrates in. Refer to '48'.
39. Over a period of time you pile on the kilo's of stored Fat and the Magnesium levels in the Liver Cells have dropped so low you are now Addicted to Glucose.
40. This Glucose Addiction is much more powerful than Nicotine.
41. If you do not succumb blood Glucose levels will plummet so low in a hypoglycaemic state, coma may set in.
42. Any wonder those poor souls who are chronically Obese cannot kick the habit. Many say they have no will power and to lazy to try, you try kicking the habit in the same situation.

43. The irony of this situation many of these Chronically Obese people have followed the Dietary advice of Government Nutritional Health Programs, "Nutritional Experts", Medical Profession or not so magic Diet Books.
44. Severely depleted Magnesium levels in the Kidney will eventually destroy the Kidney.
45. At this stage of Chronic Obesity when just moving around is a burden the Medical Profession offer banding of the stomach. This restricts the amount of food that can be consumed at any one time and thus restricts food intake and Fat storage.
46. All that is really required is sufficient Magnesium **intake** that ensures sufficient **uptake** of Magnesium to allow the Liver Cells to function normally and resupply the blood with Glucose. Then you can give up the Glucose Carbohydrates and move to a higher Protein and limited Fat diet with plenty of greens to start the burning up of excess Stored Fat refer to:-
47. **Anti-Inflammatory Dietary Requirements Including Beneficial Supplements Obesity**
48. Some magic statements RDI:- recommended daily intake. For Magnesium 350-400mg as listed would suffice and we would not have Glucose Addiction, but because of the Inflammation created in the Fat cells by Insulin the **Uptake** is severely reduced. Because of this situation I term RDI:- Ridiculous Directions Indicated. An **intake** of 2000-3000mg may be necessary to **Uptake** 350-400mg of Magnesium. The next ridiculous analogy RDA:- recommended daily allowance 350-400mg of Magnesium. Because of this situation I term RDA:- Ridiculous Directions Absolute. An **intake** of 2000-3000mg may be necessary to **Uptake** 350-400mg of Magnesium. The real dynamic indicator should be RDU:- Recommended Daily Uptake 350-400mg of Magnesium.
49. So much for the Medical approach of stomach banding, I think that taking Zinc with Magnesium to bowel tolerance and just backing off is a much more effective and civilised way of handling this situation. At least you can lose your Glucose Addiction and the excessive storage of Fat. This will get rid of your hunger pangs allowing a return to normal healthy living thus becoming a real asset to the community.
50. The lack of Cellular Magnesium is a problem in every cell in the body, especially liver, kidney, heart, muscle and brain cells.
51.
52. On the storage cycle there is an enzyme PC Pyruvate Carboxylase that enables this function. This enzyme is also Magnesium dependent and may start to shutdown at any time of this continuos storage cycle. If this enzyme shuts down it may save you from becoming the size of a house, but the problem is you can no longer store the excess metabolic carbohydrate fragments.
53. Blood glucose levels rise quite dramatically and do not return to normal.
54. This condition is known as Diabetes-2.
55. This enzyme PC has Magnesium as a major metalic cofactor and Zinc is a minor cofactor 'this is in animal cells'. In Yeast cells Chromium is a metalic cofactor.
56. In animal cells Chromium is at best a placebo and at the worst an antagonist.

57. How come Chromium is recommended to lower Blood Glucose Levels when in fact the best it can offer is no relief and more likely part of the problem.
58. **Magnesium is the major metallic cofactor ? how come Magnesium is not recommended.**
59. **Low magnesium levels are the reason for kidney failure in Diabetes-2**
60. Now if you wish to rid yourself of Diabetes-2 first find a suitable Medical Practitioner or Qualified Health Professional prepared to guide you through this process refer to:-
61. **Anti-Inflammatory Dietary Requirements Including Beneficial Supplements Diabetes-2**
62. For Diabetes-2 as a result of Glucose Addiction or part there off take Magnesium to bowel tolerance and just back off also Zinc to aid transport into the cell..
63. When blood Glucose levels are back to normal for a reasonable period remove all Carbohydrates including Fruit from your Diet and go on a high Protein Diet.
64. Remember don't let Blood Glucose levels ever drop below a safe level.
65. Keep up a good exercise program to reduce Blood Glucose levels.
66. After a period of about eight weeks of stable blood Glucose levels you may introduce Fruit back into the Diet.
67. If you are still trying to lose weight limit Fruit intake and do not consume Fruit Juices.
68. Glucose and Insulin induced Inflammation is your problem so don't let it happen again.
69. Phytates are major inhibitors of magnesium and zinc uptake in the intestines, iron is also affected. The brans of wheat, corn, rye and to a lesser extent oats are the problem. The content of phytates in barley are low and rice contains no phytates. Some legumes are also high in phytates.
70. If you are suffering or have suffered from Obesity, Diabetes-2, Osteo-Arthritis and CVD don't fall for the "DEADLY DUO". Don't let the experts and the marketing magnates fool you again. High Insulin levels are killing you at a rapid rate.
71. Keep the **"DEADLY DUO" (Glucose Carbohydrates and Omega-6 Vegetable Oils)** out of your diet. Phytates are also a problem, refer to 69 above.
72. **"Obesity and Diabetes-2" Restict Fruit and keep Fruit Juices out of your Diet.**
73. For Oestrogen related onset refer to:-
74. ***Elevated Oestrogen Levels*** "Negative Health Outcomes"
75. **For cholesterol refer to the article:-Cholesterol and Atherosclerosis.**

CHOLESTEROL AND ATHEROSCLEROSIS
LOW FAT NO FAT DIETS
The Real Facts
These diets are almost devoid of Vitamin A

1. Transport of cholesterol into and out of the cell requires transporter proteins.
2. These proteins require 'RXR'-'LXR'gene transcription for these proteins.
   RXR **Retinoid X Receptor** requires **Retinoic Acid (RA) Vitamin A.**
   LXR **Liver X Receptor** LXRa, LXRb
   LXRa requires T3 signaling to activate. Ref-1
3. The transcription of these transporter proteins require Vitamin A and also the active thyroid hormone T3.If Vitamin A and or T3 are low the transcription of these transporter proteins will be greatly affected.
4. The transport of cholesterol into and out of the cells will be greatly reduced.
5. Cholesterol producing cells in the Liver require LDLR for transport of cholesterol back into the cell as a high level shutdown. (negative feedback).
6. Low Density Lipoproteins require a receptor protein LDLR. When circulating cholesterol is high this feedback shuts down the production of cholesterol at the enzyme HMG-CoA Reductase.
7. When LDLR is compromised the transport of cholesterol into the cell is greatly reduced.
8. Low feedback of cholesterol leaves the enzyme HMG-CoA Reductase turned on so cholesterol synthesis will keep on while energy levels in the Liver cells are high.
9. SREB2 and HMG-CoA Reductase control the cholesterol production from fat. Listed below in order of preference the fats for cholesterol production.
   I. 18 Carbon-Saturated Fat (stearic:-white animal fat) 18:0
   II. 18 Carbon-Mono-unsaturated Fat (Oleic:-major content in olive oil) 18:1w9
   III. 18 Carbon-Poly-unsaturated Fat (Linoleic:-major content in vegetable oil) 18:2w6

Major Fat content of Butter (general-average)

a) 18:0 - 7%
b) 18:1w9 - 24%
c) 18:2w6 - 2.5%
d) 16:1w7 - 2.6%
e) 16:0 - 23.9%
f) 15:0- 2.1%
g) 14:0-11.2%

h) 12:0 - 3.9%
i) 10:0 - 3.7%
j) 8:0 - 1.9%
k) 6:0 - 4.6%
l) 4:0 - 11.8%

Only (a, b, c) can be utilized to make cholesterol

(d,e) can be used for energy* (high protein diet) *or stored* (carbohydrate diets*).

(f-l) used for energy - not stored

Major Fat content of Margarine (general-average)

m) 18:0 16 - 18%
n) 18:1w9 - 25-40%
o) 18:2w6 - 14-20%

(m,n,o) can be utilized to make cholesterol

10. 18:2w6 the major component in most vegetable oils converts to 20:4w6 in three stages 18:2w6 – 18:3w6 – 20:3w6 – 20:4w6 Arachidonic Acid (A.A.)
11. **A.A. is the fuel for all inflammation.**
12. **Over 90% of all major illness including Cancer have their origins in inflammation.**
13. 18:2w6 content in Butter 7%
14. 18:2w6 content in Margarine 17%
15. 20:4w6 A.A. is implicated in Heart Disease. Ref.-2
16. 20:4w6 A.A. is implicated in the initiation of Prostate Cancer. Ref.-3
17. Insulin combined with excess energy control SREB2 and HMG-CoA Reductase (excess energy being diverted to store)
18. Diets with more than a minimal content of Carbohydrates containing readily available (Glucose and Fructose) provide this condition.
19. High protein and fat diets induce the release of Glucagon not Insulin. The synthesis of cholesterol will only occur if eating carbohydrates or when resting levels of glucose are elevated during sleep.
20. High protein diets source most of their cholesterol from the diet.
21. If the cholesterol supply from the diet is high cholesterol production will be inhibited and feedback into the cell also inhibited until the export of VLDL reduces cholesterol levels in the cell.

22. Carbohydrate diets produce excessive amounts of cholesterol when energy levels are high coupled with low Vitamin A and or T3 levels, this condition is exacerbated by dietary cholesterol.
23. Low Fat no Fat diets are very low in dietary Vitamin A.
24. Beta-carotene:- yellow vegetables and lycopene:- tomatoes both have a similar chemical structure as cholesterol and require the same transporter proteins. If Vitamin A levels are low the transport of beta-carotene into the Liver cells will be low.
25. ***The Liver cells convert beta-carotene to Vitamin A, so if transport into the cells is low Vitamin A levels will be low.***
26. ***Low Fat no Fat Carbohydrate diets*** **have the potential to be a disaster if energy levels are not controlled by exercise, diet supplemented with Vitamin A and T3 kept at a satisfactory level.**
27. T4 the inactive thyroid hormone is converted at cellular level to T3 the active hormone by the enzyme deiodinase, selenium is an enabling cofactor.
28. Selenium is severely depleted in our soils and modern agricultural practices exacerbate this problem. Supplementation is essential.
29. Low T3 levels are primarily the result of low T4 levels and or low selenium levels.
30. T4 Thyroxine is comprised of 2 tyrosine molecules end for end with 4 iodine atoms attached to the bottom segment.
31. T4 requires Tyrosine and Iodine for the building blocks. If either are depleted in the Thyroid Gland T4 will be deficient.
32. Tyrosine levels are controlled mainly in the liver by the enzyme amino-transferase. This enzyme controls the breakdown pathway to energy.
33. Tyrosine amino-transferase is hormonally controlled by oestrogen. IF oestrogen levels are elevated the breakdown of tyrosine is greatly accelerated, leaving T4 levels severely depleted.
34. Iodine is not normally a problem as table salt is fortified with iodine.
35. Elevated oestrogen levels have their origins in:-
    a) The contraceptive pill.
    b) HRT
    c) Phytoestrogens in Soy
    d) Elevation of oestrogen levels in senior years.
36. Phytoestrogens in Soy can be a real problem. Unfortunately Soy is found in almost all manufactured foods today. Soy milk is a real disaster for a large percentage of the population. There is so much hype from many

sources on the benefits of Soy. These statements are so often way off the mark and sometimes absolutely wrong.

37. I hope this fast journey through transporter proteins has given you some basic insight into high cholesterol levels.

Atherosclerosis

Depletion of The Bodies Vitamin A Stores has a profound effect on Atherosclerosis, Vitamin A is high in Animal Fats

1. The major initiator of Atherosclerosis is the build up of cholesterol plaque on the blood vesicle walls. Ongoing build up greatly reduces the blood flow capacity of the major arteries.
2. How does this cholesterol plaque manifest and what is the composition of plaque.
3. Plaque is formed from Macrophages engorged with cholesterol forming foam cells. Inflammation triggered by these small cells as they engorge with cholesterol allows them to corrupt and adhere to the blood vesicle walls.
4. The built up of cholesterol in the macrophages is the result of insufficient transporter proteins to transport cholesterol out of the cell.
5. Transport of cholesterol into and out of the cell requires transporter proteins.
6. These proteins require 'RXR'-'LXR'gene transcription for these proteins.

RXR **Retinoid X Receptor** requires **Retinoic Acid (RA) Vitamin A.**
LXR **Liver X Receptor** LXRa, LXRb
LXRa requires T3 signaling to activate

7. The transcription of these transporter proteins require Vitamin A and also the active thyroid hormone T3.If Vitamin A and or T3 are low the transcription of these transporter proteins will be greatly affected.
8. The transport of cholesterol into and out of the cells will be greatly reduced, some cells require transport in and some transport out.
9. Macrophages require the transporter proteins ABCA1, ABCG1 to transport cholesterol out of the cell.
10. ABCA1 combines with ApoA-1for cholesterol efflux out of the cell to make immature HDL.
11. Immature HDL is converted to mature HDL by the enzyme LCAT.

12. ABCG1 combines with SR-B1 for cholesterol efflux out of the cell to make mature HDL.
13. HDL carries cholesterol back to the Liver for recycling and conversion to Bile Salts.
14. If Vitamin A and T3 levels are sufficient LDL will be converted to HDL in the Macrophages and shipped back to the Liver for reprocessing to bile acids free cholesterol for recirculation.
15. **If Vitamin A and or T3 levels are insufficient LDL will be trapped in the Macrophages and not shipped back to the Liver, instead building up in the Macrophages to form foam cells and Cholesterol Plaque.**

***Low Fat No Fat Diets are not making us healthier,* rather the contrary is really the case.**

Retinoic Acid Vitamin A is required to inhibit the progression of normal Th14 immune cells to Th17 rogue cells. Th17 cells turn on IL-6 and the highly inflammatory Leukotriene B4 (LTB4) pathway. This pathway is the destructive pathway in Autoimmune Diseases. Diabetes-1 (type 1) results in the destruction of beta cells in the Pancreas by this Inflammation.
Children right to adulthood should be supplemented with cod liver oil which is high in Vitamin A as well as Omega-3 Fish Oils.

Insulin turns on the store cycle to store Fat as Triglycerides and also turns on the cholesterol pathway.

The Fats made in the body all come from Carbohydrates:-"Glucose and Fructose" in excess to energy requirements.

Insulin at normal base levels is Vasodilative lowering blood pressure and also anti-inflammatory.

Elevated Insulin levels are Vasoconstrictive increasing blood pressure and also highly Inflammatory.

Glucagon turns off the store cycle and breaks stored Fat down for energy, Glucagon also inhibits the cholesterol pathway.

Glucagon turns on Gluconeogenesis (the making of new Glucose) to stabilize blood Glucose levels. This pathway is restricted by low Magnesium levels, this is known as "Syndrome X" .

This same Pathway in the Kidney is used to remove protein from the Kidney. The accumulation of protein in the Kidney (low Magnesium levels) destroys the fine filtering channels; Kidney Failure.

If the store cycle shuts down because of low Magnesium levels Glucose is trapped in the blood elevating blood Glucose levels "Diabetes-2".

Magnesium uptake is greatly reduced by Inflammation turned on by Insulin in the Fat cells of the Intestine.

Magnesium uptake is also severely reduced by the Phytates in Grains and some Legumes.

Our Aboriginal population suffer drastically with Obesity and Diabetes-2.

Some studies have been done returning them to the wild on bush tucker. The outcomes have been remarkable, when they return their Obesity and Diabetes-2 have completely resolved.

A case of horses for courses, they are hunter gatherers and a Carbohydrate diet does create a healthy life style for them, Alcohol exacerbates this.

If you come from the thrifty gene group your Insulin response to elevated blood Glucose levels will be high. Inflammation is cause of the problem turned by high Insulin levels.

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