

Vi måste bromsa uppgången av diabetes och frånga den fettsnåla kosten

Ett av de allvarliga hälsoproblemen idag är den snabbt ökande förekomsten av diabetes i västvärlden. Även ungdomar börjar insjukna i typ-2 diabetes, det som tidigare kallades "åldersdiabetes". Bland läsarna finns säkerligen många som själva har förhöjt blodsocker, är diabetiker eller har närstående som är drabbade. Många av oss visar tecken på insulinresistens, dvs man har samtidigt bl a högt blodtryck, övervikt och påverkad glukostolerans.

Det finns nu starka misstankar att det är den fettsnåla kosten som är den viktiga orsaken till denna utveckling och vi måste tillsammans göra stora ansträngningar för att få en förändring till stånd.

Sveriges Konsumenter i Samverkan (SKiS) har bett mig sammanställa en skrivelse om den nya synen på hur diabetessjukdom och kolhydratrik kost (fettsnål kost) hör samman. SKiS avser att uppvakta Socialstyrelsen och folkhälsoministern i denna fråga.

Jag önskar att denna information sprids till era närstående och bekanta, diabetesorganisationer, skolkök och andra storkök, daghem, dietister och kostrådgivare samt naturligtvis via media till allmänheten.

Två experter som följer dessa frågor vill jag nämna:

Uffe Ravnskov, MD, PhD, author of *The Cholesterol Myths* uffe.ravnskov@swipnet.se

Fedon Lindberg, MD, author of *Naturlig Slank med "Kost i Balans"* fedon@online.no

Kan felaktiga kostråd ligga bakom den snabba ökningen av diabetes?

Insikten om att de kostråd, som spritts i västvärlden under flera årtionden, varit ogrundade, verkar nu få stora konsekvenser.

Det var under våren 2001 som den amerikanske vetenskapsjournalisten Gary Taubes i Science (Science 2001 291: 2536-2545) visade att den fettsnåla kosten inte gjort oss friskare, trots enorma forskningsinsatser för att försöka visa detta. Under sommaren 2002 skrev Taubes ännu en liknande artikel i New York Times ("What if it's All Been a Big Fat Lie?") som fått Amerika att vakna ur den fettsnåla kostens och margarinernas framtidsdrömmar.

Det finns i stället mycket som tyder på att den fettsnåla kosten i stället gör oss sjukare. Det är främst den störda insulinregleringen som bidrar till olika former av sjuklighet, t ex övervikt, diabetes, hjärt- och kärlsjukdom. (Se sid 4).

När det gäller diabetes, måste vi ställa oss den obehagliga frågan om vi inte med öppna ögon bäddat för denna sjukdom genom de felaktiga kostråden? Det kan t o m vara så att vi leder våra ungdomar in i diabetessjukdom genom att varna för fett, medan vi i stället borde varna för den höga snackkonsumtionen, sockerhaltiga läsk- och sportdrycker, pizza, bakverk osv. Enligt den gamla kostpyramiden skulle basen ju utgöras av kolhydrater, vilket idag närmast framstår som en försåtlig biljett till övervikt och diabetessjukdom. En av de världsledande näringsforskarna från Harvard, Walter Willett, har gjort om denna gamla pyramid (till "The Healthy Eating Pyramid", se boken "Eat, Drink and Be Healthy", ISBN 0-684-863337-5) och rekommenderar oss att ta bort "snabba" kolhydrater från pyramidens bas och sätta till fett i stället.

Men de svenska myndigheterna har fortfarande svårt att tänka om, sannolikt till ett oöverskådligt högt pris för folkhälsan. Detta gäller i synnerhet för de som redan är diabetiker och de som ligger i riskzonen för att få ökad insulinresistens eller att bli diabetiker. I Apotekets tidning nr 4/2002 kan man tyvärr fortfarande läsa följande om diabetes:

”Doktors bästa råd för att minska risken” bl a ”Undvik fet mat, använd lättprodukter i stället”

Nya kostråd

Det är nu hög tid att utvärdera vad allt fler forskare varnar för och även våga erkänna tidigare felaktiga uppfattningar om den fettsnåla kosten och den gamla kostpyramiden av folkhälsoskäl. Det är inte försvarbart att vänta, när den framtida hälsan hos våra ungdomar står på spel. Till dess myndigheterna förmår utforma de nya kostråden, kan ett förslag till provisoriska nya kostråd sammanfattas på följande sätt:

- **Ät mindre kolhydrater, särskilt s k ”snabba kolhydrater” (vitt bröd, bagetter, pizza, cornflakes, sockerhaltiga läskedrycker, godis etc.)**
- **Ät mera fett. Både mjölk- och smörfetter och enkelomättat fett är bra. Undvik fett som behandlats med kemikalier, t ex margariner samt livsmedel med härdade fetter (transfetter).**
- **Ät mera protein**

Det är en förhoppning att en snabb ändring kan komma till stånd och att dietister och kostrådgivare kan medverka till att påskynda denna omläggning, för att det inte skall uppstå onödiga och undvikbara fall av diabetes i samhället.

Underlag för de nya kostråden

Här följer en redovisning av olika rapporter som visar på behovet av en radikal kursändring inom diabetesområdet. Rubrikerna är:

- I. Kostpyramiden och den fettsnåla kosten är mest skadlig för diabetiker
- II. Amerikanska Diabetesförbundet (ADA) råder nu diabetiker att äta mer fett och mindre kolhydrater.
- III. Mättade fetter är bra för diabetiker
- IV. Mjölksprodukter skyddar mot diabetes och hjärtsjukdom
- V. Fleromättade fetter försämrar diabetessjukdom
- VI. Transfetter (härdade fetter) ökar risken för diabetessjukdom
- VII. Läskedrycker ökar risken för övervikt
- VIII. Gamla kostpyramidens kolhydrater riskerar att försämra synen genom den manipulerade insulinregleringen
- IX. Proteinkost förbättrar diabetessjukdom.
- X. Övervikt och diabetes hos ungdomar fortsätter att öka i USA

- XI. Experter fruktar nu en epidemi av typ-2 diabetes hos barn i USA
- XII. Övervikt och diabetes ökar i Sverige
- XIII. Fetma fortsätter att öka i USA liksom diabetes
- XIV. Många amerikaner har idag förstadium till diabetes
- XV. Skall diabetes förebyggas eller behandlas?

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I. Kostpyramiden och den fettsnåla kosten är mest skadlig för diabetiker

I Amerika ger den inflytelserike diabetesläkaren, forskaren och författaren Dr. Richard K. Bernstein (själv diabetiker) stöd för den nya synen på den fettsnåla kostens skadeverkningar och kommenterar Gary Taubes artikel i NYT. Observera hans skarpa ord hur Amerikanska Diabetesförbundet (ADA) tidigare aningslöst förvärrat diabetes i samhället i stället för att lindra sjukdomen:

(Från hemsidan www.diabetesincontrol.com)

What if it's All Been a Big Fat Lie?

Gary discusses how the low-fat-is-good-health hypothesis has now effectively failed the test of time. In particular, that we are in the midst of an obesity & diabetes epidemic which is coincident with the progression of the low-fat dogma.

Dr Bernstein's comments regarding the Gary Taubes article:

It's about time that the truth finally hits the headlines. Let's hope that Gary Taubes' concern for the general public and for those who do not yet have diabetes will trickle down to concern by physicians for their diabetic patients.

As the viewers of this site should realize by now, the adverse effects of high carbohydrate diets upon diabetics are far more brutal and occur much more rapidly than for the general public.

With the hopeful inversion of the "food pyramid" for the general population, perhaps the ADA will come to realize that normal blood sugars are not only necessary but are easy to obtain. I would hope that within the next few years, the ADA will give in to this concept and recommend normal blood sugars instead of guidelines that diabetics should have twice the blood glucose levels as non-diabetics.

Richard K. Bernstein, MD, FACN, FACE, CWS

Doktor Bernsteins omvälvande och i USA mycket spridda bok (miljonupplaga) heter "Diabetes Solution" (ISBN 0316093440).

I den tidigare nämnda boken av Walter Willett, "Eat, Drink and Be Healthy", finns två talande figurer.

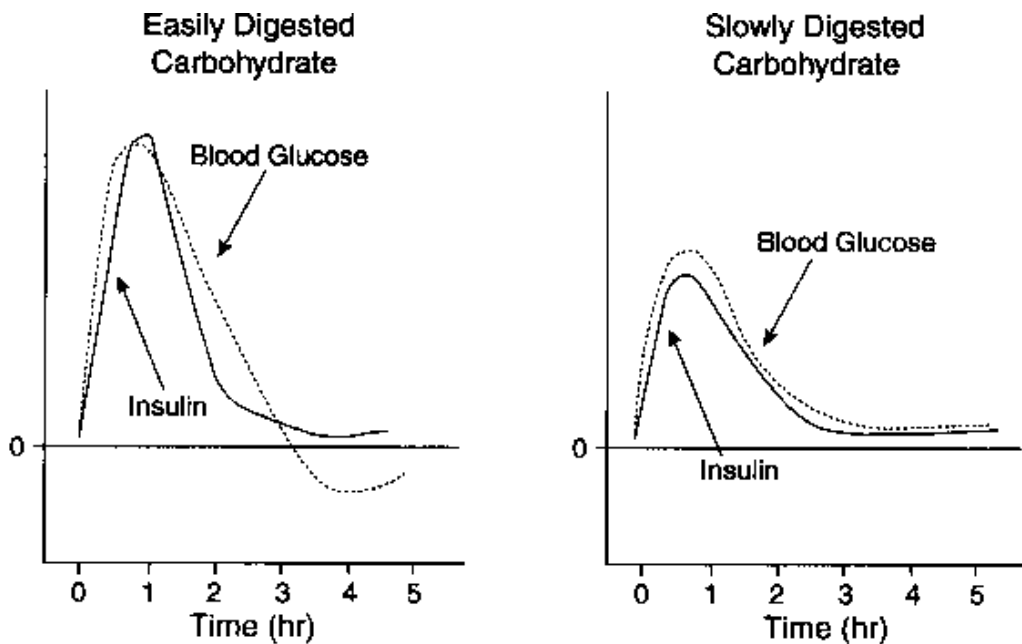


FIG. 11 Response to Eating Carbohydrates

I det högra diagrammet ser vi hur riktig kost skall påverka blodsockret och insulinet på ett normalt och friskt sätt. Efter ett intag av en begränsad mängd (icke snabba) kolhydrater tillsammans med fett och protein ökar insulinproduktionen och blodsockret går ner.

I det vänstra diagrammet ser vi den troligen viktigaste orsaken till övervikt, diabetes m m i dagens samhälle. Den fettsnåla kosten gör att den energi som vi behöver, tas från en onaturligt stor mängd snabba kolhydrater i stället för fett och protein, som ofta finns i samma livsmedel. Det är ju kolhydrater som är basen i den gamla kostpyramiden. Nu provoceras insulinregleringen och det bildas en onaturlig rekyleffekt. Blodsockret pressas alltför långt ned och då återvänder hungern – trots att vi nyss har ätit en stor mängd kolhydrater. Den fettsnåla kostens människa går med en utebliven solid mättnadskänsla och småäter mer eller mindre ofta. Samhället svarar på detta diffusa småätande, och det har byggts upp en struktur av ”apotek” för den fettsnåla kostens människa. T o m i järnaffärer finns godis och på bensinmackarna finns korvar, läsk, chips, smörgåsar, wienerbröd, muffins och rader med choklad och plockgodis. Köerna i våra livsmedelsbutiker avskärmas med långa godishyllor osv.

Den lilla böjen nedtill på den prickade kurvan för blodsockret kan ses som en symbol för hela misslyckandet med den fettsnåla kosten.

En studie vid ett barnhem i Boston visade att de överviktiga barn, som åt en frukost av ”snabba” kolhydrater, satte senare i sig dubbelt så mycket mellanmål och snacks i jämförelse med de som fick långsamma kolhydrater. Kaloriintaget var lika stort i båda frukostarna.

EAT, DRINK, AND BE HEALTHY

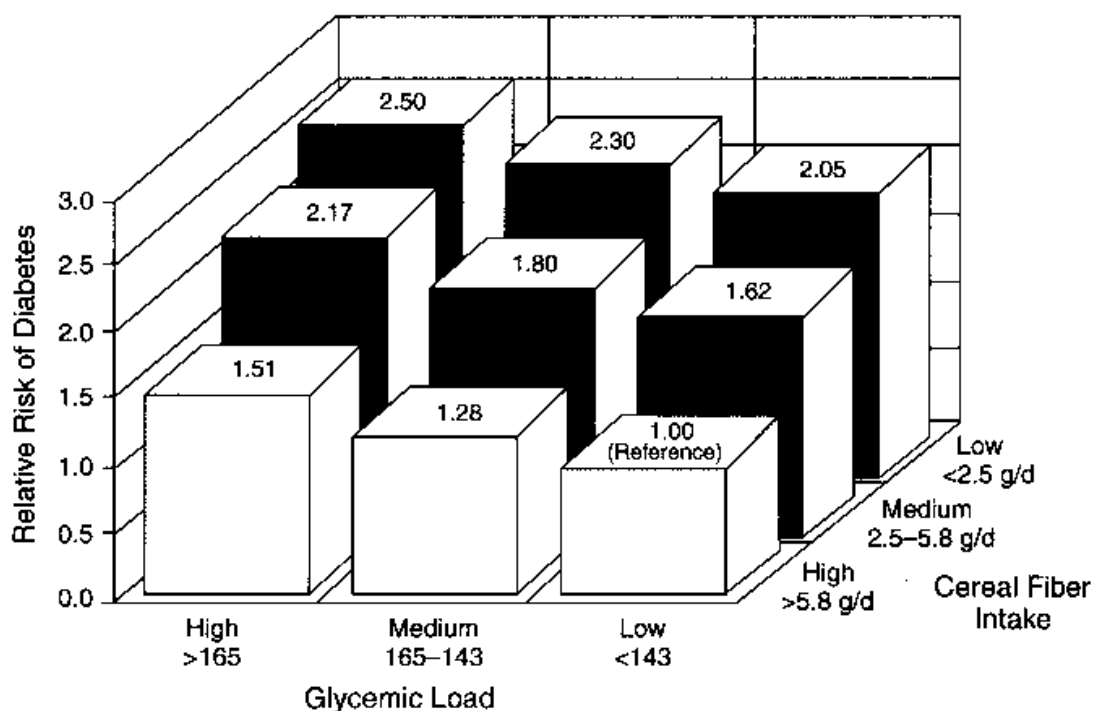


FIG. 13 Glycemic Load, Cereal Fiber Intake, and Risk of Type 2 Diabetes; Nurses' Health Study

I denna figur visar Willett efter en övertygade studie på viktiga samband mellan kost och diabetes hos en mycket stor grupp sjuksköterskor i USA. Risken för typ-2 diabetes ökar ju större intag kvinnorna hade av snabba kolhydrater (glycemic load). Vi ser också att ett ökat fiberintag sänker risken. Detta beror sannolikt på att kostfibrerna fördröjer upptaget av de snabba kolhydraterna. Även ett ökat fettintag ger samma fördröjande effekt.

II. Amerikanska Diabetesförbundet (ADA) råder nu diabetiker att äta mer fett och mindre kolhydrater.

Fettet bör vara enkelomättat, inte fleromättat som margarinindustrin och Livsmedelsverket i Sverige förordar. Även mjölkprodukter med sina mättade fetter, som Livsmedelsverket felaktigt påstår innehåller skadliga fetter, förbättrar diabetessjukdom. Däremot har de fleromättade fetter, som Livsmedelsverkets fettexpert Bengt Vessby rekommenderar och som finns i margarin, visat sig försämra diabetessjukdom hos äldre. Det har Vessby själv visat.

(Från hemsidan www.diabetesincontrol.com)

DID YOU KNOW

People with diabetes can now choose a high-monounsaturated diet instead of the high-carbohydrate/low-fat diet, that according to the latest guidelines issued by the American Diabetes Association (ADA). The new recommendation has shown improvement in HDL, Cholesterol, Triglycerides and most importantly, diabetes blood glucose control.

FACT: Diabetes to dramatically increase in next ten years.

According to the British Heart Foundation and Diabetes UK, "The number of diabetes sufferers is expected to double in Britain over the next ten years, causing a huge increase in deaths from heart disease. Yet many could ward off the threat of diabetes in middle age or reduce its impact by abandoning their 'couch potato' lifestyles".

Did You Know?

Dairy products found to reduce diabetes risk: Research published in the Journal of the American Medical Association suggests that consuming dairy products reduce the risk of adult-onset diabetes. The study looked at 18 to 30 year olds and found that overweight individuals who ate five or more dairy products a day were less likely to develop an insulin resistance than those who ate dairy products only once a day. (AMA March 2002)

III. Mättade fetter är bra för diabetiker

(Från hemsidan www.DrMercola.com.)

Saturated Fat Helps Diabetic Control

By Andrew A. Skolnick

Patients with type 2 diabetes may have better blood glucose control and weight loss without adversely affecting their serum lipid levels if they substitute saturated fats for carbohydrate in their diets.

Researchers reviewed the medical records of over 150 patients with type 2 diabetes, who had completed a one-year follow-up after a dietary prescription for a high saturated fat diet with avoidance of carbs. The patients were compared with 132 historical control subjects, who had been allowed unlimited monounsaturated fat and restricted starch.

While haemoglobin A1c levels improved in both the diet and control groups, patients in the diet group had an additional decrease, the researchers reported. Use of a hydroxymethylglutaryl-coenzyme A reductase inhibitor was associated with a reduction in total cholesterol level. However, the diet group had an additional decrease. The investigators found no significant effect of the diet on the patients' triglyceride, low-density lipoprotein, or high-density lipoprotein levels.

Although it was not statistically significant, patients on metformin therapy showed a trend for weight loss. An additional weight loss was noted in the diet group.

"Addition of saturated fat and removal of starch from a high-monounsaturated fat and starch-restricted diet improved glycaemic control and were associated with weight loss without detectable adverse effects on serum lipids," the researchers concluded.

Endocrinology Practice_May June 2002; 8: 177-183

IV. Mjölksprodukter skyddar mot diabetes och hjärtsjukdom

Drink milk, fight heart disease: study

Last Updated Thu, 25 Apr 2002 16:57:28

BOSTON - Drinking milk and eating dairy products could protect overweight adults from diabetes and heart disease, according to a new study.

A report in the *Journal of the American Medical Association (JAMA)* tracked more than 3,000 adults for 10 years in four areas of the United States.

Researchers discovered that overweight people who consumed dairy products more than 35 times a week suffered 72 per cent less insulin resistance syndrome than those who consumed dairy products less than 10 times a week.

Insulin resistance syndrome (IRS) is a name given to the four factors in heart disease and diabetes. A person with two of four risk factors — obesity, high blood sugar, high blood pressure or cholesterol problems — is considered to have the syndrome.

"We found that intake of all types of dairy products appeared to be protective," says Mark Pereira, the lead author of the study and a researcher at the Children's Hospital of Boston.

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CBC News Online:

ALARMING RATES OF OBESITY IN CHILDREN

The researchers identified dairy products as any items that were either 100 per cent dairy — such as milk — or included dairy as one of the main ingredients — such as dips made with sour cream.

The authors say dairy products are rich in nutrients, helping protect the human body against such disease.

They also note the alarming rates of obesity in children and increased numbers of people getting Type 2 diabetes. Researchers say this may be connected to decreased milk consumption over the past 30 years.

'If you are replacing dairy with (unhealthy) things, you are going to drive your risk up'
"It could be that dairy is inherently good for you, but it also could be that if you are replacing dairy with (unhealthy) things, you are going to drive your risk up," says Pereira.

The conclusions run counter to government health recommendations concerning a low-fat diet. Saturated fat that is found in dairy foods can increase levels of LDL, or "bad" cholesterol.

"The amount of fat in the dairy was not important," says Pereira.

"The current dietary recommendations are to include reduced-fat dairy products in the diet. We're certainly not even beginning to discuss any possible changes to the dietary recommendations."

Dr. Christopher D. Saudek, president of the American Diabetes Association, says the study suggests dairy consumption may not be the problem in overweight children and parents.

The study was funded by the Children's Hospital League, Charles H. Hood Foundation and a grant from the National Institute of Diabetes and Digestive and Kidney Diseases and the National Heart, Lung, and Blood Institute.

Written by CBC News Online <<http://cbc.ca/bios.html>>staff

V. Fleromättade fetter försämrar diabetessjukdom

Vessby m fl (1992) har visat att typ-2 diabetes (åldersdiabetes) försämras vid intag av fleromättade fetter hos äldre. Margariner innehåller förhållandevis mycket processat fleromättat fett.

Det finns dock två viktiga fleromättade fettsyror som är essentiella och som vi behöver i viss relation, omega-3 och omega-6. Men det räcker med tämligen små intag av dessa.

Diabet Med 1992 Mar;9(2):126-33

Polyunsaturated fatty acids may impair blood glucose control in type 2 diabetic patients.

Vessby B, Karlstrom B, Boberg M, Lithell H, Berne C

Department of Geriatrics, Uppsala University, Sweden.

Fifteen patients with Type 2 diabetes were given two diets rich in either saturated fat or polyunsaturated fat in alternate order over two consecutive 3-week periods on a metabolic ward. Both diets contained the same amount of fat, protein, carbohydrates, dietary fibre, and cholesterol.

The proportions of saturated, monounsaturated and polyunsaturated fatty acids in the saturated fat diet were 16, 10, and 5%-energy and in the polyunsaturated fat diet (PUFA) 9, 10, and 12%-energy. The PUFA diet contained a high proportion of n-3 fatty acids.

Metabolic control improved significantly in both dietary periods, due to both qualitative dietary changes and a negative energy balance. The serum lipoprotein concentrations decreased on both diets but the serum lipids were significantly lower after the PUFA diet (serum triglycerides -20%, $p = 0.001$; serum cholesterol -5%, $p = 0.03$; VLDL-triglycerides -29%, p less than 0.001; and VLDL-cholesterol -31%, $p = 0.001$) than after the saturated fat diet. Average blood glucose concentrations during the third week were significantly higher fasting (+15%, p less than 0.01), and during the day at 1100 h (+18%, p less than 0.001) and 1500 h (+17%, $p = 0.002$) on PUFA than on the saturated fat diet. Significantly higher blood glucose levels were also recorded with a standard breakfast, while the sum of the insulin values was lower (-19%, $p = 0.01$). HbA1c did not differ significantly between the two dietary periods.

VI. Transfetter (härdade fetter) ökar risken för diabetessjukdom

De fetter som kraftigt ökar risken för diabetessjukdom är transfetter (härdade fetter). Dessa kemiskt tillverkade fetter har också en rad andra negativa effekter på vår hälsa, något jag skall återkomma till. (Från www.DrMercolas.com)

Trans Fats, NOT Saturated Fats, Increase Diabetes Risk

“Total fat and saturated and monounsaturated fatty acid intakes are not importantly associated with risk of type 2 diabetes in women but dietary trans fatty acids increase and dietary polyunsaturated fatty acids reduce the risk.

According to the report, Americans consume about 3% of total calories from trans fat, which is produced when liquid fat such as oil is processed in order to make it solid at room temperature. Margarine, for example, is a major source of trans fatty acids. (Endast vissa margariner i Sverige innehåller transfetter/härdade fetter, övriga innehåller omestrade fetter. Härdade fetter blir allt vanligare i andra produkter och finns i en t ex bröd från Pågens, kakor och keks från Göteborgs Kex, choklad från Marabou, potatismospulver osv, min kommentar).

Investigators reviewed medical and dietary data from more than 84,000 women who did not have diabetes, heart disease or cancer when the study began in 1980. Results show that intake of total fat, saturated fat and monounsaturated fat found in nuts, seeds and avocados did not influence diabetes risk. But a 2% increase in calories from trans fatty acids raised the risk by 39%”
(*American Journal of Clinical Nutrition* June 2001;73:1001-1002, 1019-1026)

DR. MERCOLA'S COMMENT:

Dr. Mary Enig is one of the leading scientists who have documented the enormous detriment that trans fat have on our health. Her excellent article published about one year in this newsletter comprehensively reviews this topic.

There is another article that reviews these issues.

Believe me folks, you do not want to mess around with trans fats. They are one of the worst things that you could be eating, no matter how good they taste.

Diabetes is a major problem for the US. It is actually an epidemic. Last year there was a 70% increase in diabetes in 30 year olds in the US. Fortunately, cleaning up your food choices and exercise are the key to eliminating type 2 diabetes in the vast majority of people.

VII. Läskedrycker ökar risken för övervikt

Alla dessa sötade läskedrycker och juicer är sannolikt ett långt större problem för hälsan i framtiden än totala fettintaget hos västvärldens ungdomar.

(Från hemsidan www.DrMercolas.com)

Each Daily Soda Increases Obesity Risk 60%

For every soft drink or sugar-sweetened beverage a child drinks every day, their obesity risk appears to jump 60%.

About 65% of adolescent girls and 74% of adolescent boys consume soft drinks daily.

Currently, soft drinks constitute the leading source of added sugars in the diet, amounting to 36.2 grams daily for adolescent girls and 57.7 grams for boys.

The study included over 500 schoolchildren of various ethnic backgrounds who were aged 11 and 12.

The investigators found that for every can or glass of sugar-sweetened beverage a child drank during the 19-month study, a child's body mass index--a measure of weight related to height--and their chance of becoming obese increased 60%.

This is the first long-term study that links soft drink consumption to obesity in children. The study received no financial support from any organization that either promotes or opposes soft drink consumption.

Obesity among US children has increased significantly since 1960--by 54% in children aged 6 to 11 and by 40% for adolescents, according to a report on the topic that came out late last year.

The consumption of soft drinks has increased 500% in the last 50 years, according to the US Department of Agriculture.

The Lancet 2001;357:505-508

DR. MERCOLA'S COMMENT:

The future health of our country is clearly related to having our children eat healthy. If we want to save them incredible needless grief and suffering then it would be wise to encourage them to eat properly. The first step will be to have them drink nothing but water.

VIII. Gamla kostpyramidens kolhydrater riskerar att försämra synen genom den manipulerade insulinregleringen

(Ur Land Lantbruk)

Många mackor gör barn närsynta?

Torsdagen den 4 april 2002

Barn som äter mycket bröd och flingor kan löpa större risk att bli närsynta, tror amerikanska forskare. Skälet är att stärkelsen i produkterna bryts ner alltför snabbt i kroppen.

Med den industriella tillverkningen av spannmålsprodukter raffinerar stärkelsen i långt högre grad än tidigare.

När den bryts ner snabbt svarar kroppen med att producera mer insulin, vilket bland annat påverkar ögats utveckling. Om ögongloben blir för lång uppstår närsynthet.

Det kan vara förklaringen till att närsynthet blivit allt vanligare de senaste 200 åren, tror forskarna enligt tidskriften *New Scientist*. Särkilt vanlig är närsynthet i Europa, där var tredje människa drabbas. Bland inuiter (eskimåer) och invånarna på Stillahavsöar var mindre än 1 procent av befolkningen närsynt för 100 år sedan, men nu är andelen uppe i över 50 procent. Tidigare har man antagit att närsyntheten orsakas av att läskunnigheten bredd ut sig under 1900-talet, men det stämmer inte med iakttagelserna på ögruppen Vanuatu i Stilla havet.

Trots åtta timmars skoldag är bara 2 procent av barnen på Vanuatu närsynta. Enligt forskarna beror det på att man äter mycket lite spannmålsprodukter på öarna, utan i stället fisk, jams och kokosnötter.

Andra indicier som stödjer teorin är att personer som är överviktiga eller lider av vuxendiabetes oftare är närsynta än andra. I båda fallen spelar hög insulinproduktion en avgörande roll.
(internetredaktionen@lantbruk.com)

IX. Proteinkost förbättrar diabetessjukdom.

Då protein ofta finns i samma livsmedel som fett, leder den fettsnåla kosten sannolikt till att även proteinintaget minskar. Även detta riskerar att försämra sjukdomen hos diabetiker.

(Från www.diabetesincontrol.com)

EASD: High Protein Diet Helps Control Blood Glucose in Untreated Type 2 Diabetics

Switching to a high protein diet, in which 30 percent of calories are derived from proteins (instead of 15 percent) may improve glucose control in untreated patients with type 2 diabetes.

The findings were presented 38th annual meeting of the European Association for the Study of Diabetes (EASD).

Dr. Mary C. Gannon, of the University of Minnesota, Minnesota, United States, and colleagues enrolled 11 patients (nine men, two women) with untreated type 2 diabetes in a randomised study with a crossover design. The patients were required to eat a diet consisting of 15 percent protein for a period of five weeks, followed by a diet containing 30 percent protein for the next five weeks, or vice versa.

The diet contained either 40 percent carbohydrates (high protein condition) or 55 percent carbohydrates (low protein condition). Fat content was kept at a constant 30 percent during both five-week periods. Dietary compliance was determined by measuring the urine urea/creatinine ratio twice a week throughout the trial.

Fasting glucose concentrations were measured after each of the two five-week periods and were found to be relatively constant (mean = 6.3 plus or minus 0.3 mmol/L). However, the 24-hour integrated total glucose area under the curve decreased by 7 percent (from 187 plus or minus 12.5 to 174 plus or minus 7.4 mmol.hr/L) following five weeks on the high protein diet. Furthermore, the overnight fasting triglyceride concentration significantly decreased following the 30 percent versus 15 percent protein diet (1.8 plus or minus 0.3 versus 2.3 plus or minus 0.2 mmol/L, $p < 0.05$).

Although this was a small pilot study, its results show that increasing the protein content and decreasing the carbohydrate content of the diet can lead to improved blood glucose control in people with type 2 diabetes, according to Dr. Gannon.

She also pointed out that the subjects' weight was stable throughout the entire study. "We considered this a critical aspect of the study design, because our primary goal was to

determine the effect of the diet, without the confounding effect of weight loss or weight gain."

Based on the weight stability and dietary compliance, the metabolic changes that occurred following five weeks on the high protein diet can be attributed to the increase in protein and/or decrease in carbohydrate content of the diet, rather than to any confounding factors, the researchers concluded. *The study was funded in part by the Minnesota, Colorado, and Nebraska Beef Councils.*

X. Övervikt och diabetes hos ungdomar fortsätter att öka i USA

(Från www.DrMercola.com)

By the Millions, Kids Keep Putting on Pounds

By Nanci Hellmich

Obesity researchers are alarmed by new government data that show 15% of kids and adolescents, or about 9 million children, are overweight. And overall, 20% to 30% of children in this country are either overweight or at risk of becoming so.

Kids who weigh too much are at a greater risk of becoming heavy adults, are more likely to suffer from low-esteem and have a greater chance of developing health problems such as diabetes, weight-control experts say.

"This is not a red flag, this is the fireworks going off," says Keith Ayoob, a pediatric nutritionist at Albert Einstein College of Medicine in New York City and spokesman for the American Dietetic Association.

He says families have to help their children get a handle on the problem before it gets worse.

George Blackburn, an obesity researcher at Harvard Medical School, agrees. "We only have effective therapy to stop weight gain or get modest weight loss, so we can't let these kids keep gaining."

For the 1999-2000 National Health and Nutrition Examination Survey, researchers measured the heights and weights of 4,722 children, from birth to age 19. Children who are overweight are at or above the 95th percentile based on body mass index charts for their age group. Those who are at risk of being overweight are at or above the 85th percentile. Among the findings, reported in today's *Journal of the American Medical Association*:

- About 15% of 12- to 19-year olds are overweight now, up from 5% in the late '70s.
- 15% of kids ages 6 to 11 are overweight now, up from 7% in the late '70s.
- 10% of 2 to 5-year olds are overweight now, up from 5% in the late '70s.

Some groups are particularly vulnerable to weight gain. For example, 27% of Mexican-American males ages 6 to 19 are overweight and 27% of African-American females ages 12 to 19 are overweight.

Experts say chubby children pay a huge price for extra pounds. "Overweight robs kids of their childhood, because it prevents them from doing the same kinds of activities that leaner kids do," Ayoob says. "This leaves them feeling left out and isolated. They may hibernate inside, watching TV and playing video games, which creates a vicious cycle of inactivity."

Overweight kids are often teased by their peers. "And it's not just skinny kids doing the teasing. It may be heavy kids teasing the very heavy kids," he says.

Parents who want to change kids' eating habits may have to revamp their own eating and buying habits. Family meals have to be a priority, he says.

For many kids, "snacking has become a leisure activity," Ayoob says. "They are eating because it's there. Snacking, per se, is fine."

However, the foods many kids eat aren't delivering much nutritional punch although they are packing a big punch when it comes to calories, he says. Families' kitchens are often laden with cakes, pies, cookies and a couple of rotten bananas. He recommends reversing that and putting delicious fruit on the counter, and having only a few sweet treats around.

But weight issues aren't solved by diet alone. Kids also have to cut back on TV time and become more active, experts say.

Melinda Sothorn, an exercise physiologist and director of childhood obesity research at Louisiana State University in Baton Rouge, believes families should spend at least half a day each weekend doing some physical activity together, such as skating or biking.

She encourages parents to have their children play and run around for 30 minutes when they come home from school to let off steam. When kids are reading or doing homework, she suggests that they take a three- or four-minute break every half-hour to dance to some music, jump rope or run around a bit.

Ayoob says physical activity not only burns calories, but helps kids focus on other pleasurable activities besides eating. "Food should be one of life's pleasures," he says, "but not the only one."

USATodat.com October 8, 2002

JAMA October 9, 2002;288:1723-1732;1758-1761;1772-1773 (Free Full Text Article)

DR. MERCOLA'S COMMENT:

The future health of our country undoubtedly depends upon healthier eating. Our children are our future, so healthy eating habits need to reach them as well as us. Most people who are obese—this includes children—are not happy about it and would like to return to a healthy weight. Adults know about the potential health implications but often receive incorrect information from medical "experts."

The good news is that overweight and obesity are nearly 100 percent preventable by following my eating plan, exercising, and addressing emotional stresses. Quite simply, you need to replace grain carbohydrates with vegetable greens.

Eating too many carbohydrates causes insulin levels to rise, sending your body a hormonal message essentially telling it to store fat while holding on to the fat that is already there. So not only will excess carbohydrates make you fat, they will make you stay fat. Limiting sugar is crucial in moderating this insulin response; this is true at any age.

XI. Experter fruktar nu en epidemi av typ-2 diabetes hos barn i USA

(Från www.DrMercola.com)

Experts Fear Type 2 Diabetes Epidemic in US Children

By Suzanne Rostler

Imagine that you are an overweight child who is diagnosed with a disease that will guarantee a premature death in middle age. Over the years, you might develop heart disease or kidney failure. Arterial disease may cost you your sight, or a limb.

Now, suppose that you could avoid these problems by replacing your favourite high-fat, sugary snacks with foods like apples, bananas and low-fat yoghurt, and exercising regularly to maintain a normal weight.

This is a very real scenario for the increasing number of American children diagnosed with type 2 diabetes. The rise in type 2 diabetes cases in young people has led experts to label the disease an emerging epidemic.

Until recently, the disorder was known as adult-onset diabetes because it occurred mostly in men and women over age 50. Type 1 diabetes, which requires insulin treatment, was thought to be the only form of the disease that occurred in children and adolescents. But the past 20 years has seen a steady rise in the number of children and adolescents who are diagnosed with type 2 diabetes, interviews with medical experts reveal.

"If you go back 20 years, about 2% of all cases of new onset diabetes (type 2) were in people between 9 and 19 years old. Now, it's about 30% to 50%," noted Dr. Gerald Bernstein, a past president of the American Diabetes Association (ADA) and an endocrinologist with Beth Israel Medical Center in New York City.

Health experts blame the trend on burgeoning rates of obesity among children and adolescents during the past three decades.

The trend has profound implications for the long-term health of America as many children go undiagnosed. While more and more young people are showing up in their doctor's offices with symptoms, it still does not occur to many physicians to run a diagnostic blood test, since the disease is still considered rare among children. But because symptoms can only be controlled after a diagnosis is made, many children are at risk for serious medical complications.

Among adults, diabetes is the leading cause of blindness, kidney failure, limb loss, a major cause of heart disease and the sixth leading cause of death, Bernstein said. "All of this is preventable if you control blood sugar, but in order to do that you have to know that the disease is present."

For instance, a boy who develops type 2 diabetes in his teens and is left untreated will have problems with his eyes, kidneys, lower extremities and heart by the time he reaches his early 30s. Indeed, the emerging epidemic of type 2 diabetes among children reflects a trend in the population at large. Last month, the Centers for Disease Control and Prevention (CDC) issued a report chronicling a 70% rise in the number of 30- to 39-year-old adults with the disorder between 1990-1998. Over the same period, rates of the disease rose by 40% among those aged 40 to 49, and by 31% among those aged 50 to 59, according to the report.

Problems have been simmering for decades as Americans have continued to put on weight. Researchers estimate that nearly half of all adults are overweight and nearly one-fifth are obese, or at least 30 pounds overweight.

Likewise, about 11% of the nation's 6- to 17-year-olds were overweight in 1998, compared with about 5% in 1970. As young people continue to gobble up sweets and fatty foods, researchers expect to see type 2 diabetes more frequently in children.

Other risk factors besides obesity include race, ethnicity and low socio-economic status. Blacks, Hispanics and Native Americans are at greater risk than whites, partially due to greater consumption of processed foods. Research has also shown that these populations may be genetically predisposed to obesity due to slower metabolisms, a trait that has evolved over thousands of years.

While there is no cure for diabetes, diet and exercise are often enough to control the disease and prevent complications.

Diet and exercise are keystones to treatment

Ostensibly, diet and exercise are crucial to weight loss. But studies have also shown that exercise can help to stabilize blood glucose, the primary goal of diabetes treatment, and make the cells more responsive to insulin. Obesity and inactivity appear to increase the cells' resistance to insulin.

But while a thrifty metabolism is useful when there is little food to go around--as in prehistoric times--it is a recipe for chronic disease in modern-day America, where there is enough food to provide each person with about 3,800 calories a day, said Dr. Marion Nestle, director of the department of Nutrition and Food Studies at New York University. Most adults, she said, need between 2,000 to 2,500 calories a day to survive.

"The surplus makes the food system competitive and food companies must sell food by getting people to eat more...or seek new audiences for their products--i.e., children," Nestle said. "That's why marketing to children has become so fierce. The pressure to eat more and often fosters obesity; obesity fosters diabetes."

Health experts suggest the only way to reverse the trend and avoid the medical complications and healthcare costs is to put America's kids on a diet and encourage physical activity. According to Dr. Arlan Rosenbloom, a paediatric endocrinologist in Gainesville, Florida, diet and exercise could reduce the rate of type 2 diabetes in children by 60% to 80%.

That prescription could be difficult to fill in a country that does not seem to value physical education in the schools. According to a recent report, only 25% of US public schools require students to take physical education class, down from 42% in 1991. In addition, many have cancelled after-school activities at a time when they are needed the most.

"Physical education needs to be mandatory and fun," Rosenbloom said. "We need after-school programs for non-athletes, a much greater investment in group physical activity, and we need to encourage families. That's where churches and community centers come in."

These initiatives, he said, are investments in the future health of America's youth.

In addition to boosting health, such initiatives could save considerable amounts of healthcare dollars. The CDC put the annual cost of treating diabetes (90%-95% of people with diabetes have type 2, with type 1 diabetes accounting for the remainder) at \$98 billion in 1997, the latest year for which data are available. Those costs include doctor visits, medications and hospitalization in addition to indirect costs such as short-term disability and premature death.

Bernstein estimates that over the next 25 years, the number of Americans with diabetes will rise to 50 million from the current 16 million. The cost of treating people with diabetes will amount to about \$1 trillion annually, with patients with type 2 diabetes accounting for the bulk of these costs, he said.

Reuters Health September, 8 2000

It is a major tragedy for this country's children that their parents are abusing them with abrogating their responsibility to provide them with nourishing food. Admittedly, most of this is not intentional and they are succouring to the marketing pressures and convenience of the food processing industry. Nevertheless, the end result is the same, severely compromising of the health of their children. Diabetes is just one dramatic example. It is an end-stage chronic illness. It is really mind boggling to learn that such a large percentage of newly diagnosed diabetics are so young. Those that do not come down with diabetes, will have an increased risk of all diseases, such as fatigue, recurrent infections, fibromyalgia, thyroid and adrenal impairments. It is my experience in counselling families that the major issue is rarely severe resistance by the children in switching their foods, but rather the parent's unwillingness to make the shift because they believe it would be "too difficult" for their children. Another possible factor in this epidemic is an increase in autoimmune dysfunction. According to Dr. Bart Classen, of Classen Immunotherapies, a significant percentage of people diagnosed with type 2 diabetes, actually have type 1 and are simply misdiagnosed.

XII. Övervikt och diabetes ökar i Sverige

Tidningen Apoteket nr 4/2002:

”Allt fler blir sjuka i diabetes

Över hela världen insjuknar allt fler människor i diabetes. Fortsätter ökningen kan diabetes på lång sikt bli ett av de allra största hoten mot folkhälsan. Men hotet behöver inte bli verklighet. Bättre matvanor och mer fysisk aktivitet bland människor i allmänhet skulle kunna få den uppåtstigande diabeteskurvan att plana ut eller rentav börja peka nedåt.”

Text: Åke Spross

Svenska Dagbladet 2002.06.05:

”Under de senaste tjugo åren har antal personer med fetma fördubblats. I dag finns en halv miljon feta i Sverige, eller 8 procent av alla vuxna och 4 procent bland barn och ungdom.

Fetma medför en ökad risk för främst diabetes, högt blodtryck, hjärtinfarkt, vissa cancersjukdomar och ledbesvär.

Flera studier visar att viktnedgång minskar hälsoriskerna. Fetma ökar starkt bland vuxna.”

XIII. Fetma fortsätter att öka i USA liksom diabetes

(Från www.diabetesincontrol.com)

Obesity Rates Continue to Rise in US, As Does Diabetes

Findings from two studies by the US Centers for Disease Control and Prevention indicate that the prevalence of overweight and obesity in the US continues to increase.

The findings portend burgeoning rates of medical complications such as heart disease and stroke, Dr. Cynthia L. Ogden, lead author of one of the reports, told Reuters Health.

In a study of nearly 5000 US children, Dr. Ogden's team found that more than 15% of 6- to 19-year-olds were overweight in 1999-2000, compared with about 11% in 1998-1994.

The prevalence of overweight rose to 10% from about 7% among children 2 to 5 years of age. Hardest hit were black and Mexican-American adolescents, in whom the rate of overweight increased more than 10%.

A similar trend was observed in a second study involving more than 4000 US adults. Overall, 31% of people in 1999-2000 were obese, compared with 23% in 1998-1994. Rates of overweight rose to nearly 65% of adults from 56%, while rates of extreme obesity increased to nearly 5% from 3%. Black women and people with lower educational levels were more likely to be morbidly obese, according to the report.

While weight gain was noted in all age, gender, and ethnic groups, obesity and overweight rates were highest among non-Hispanic black women.

Half of black women, 40 years and older, were obese and more than 80% were overweight, according to the report by Dr. Katherine M. Flegal and colleagues, from the CDC.

The authors cite several factors that may be to blame for rising rates of overweight and obesity. For one, physical activity has declined with technological advances, such as computers and television. Dining in restaurants, where portions are large, and the fear of crime in some neighbourhoods, which keeps people housebound, may also be to blame.

"Obesity is a complex health issue and underlying factors such as our lifestyles, the environment in which we live, and genetics play a role," Dr. Ogden said.

Regardless of the reasons, the increasing rates of overweight and obesity among children and adults point to higher rates of chronic disorders such as heart disease, diabetes, stroke, certain cancers, arthritis, and a host of other medical conditions that are life-threatening and expensive to treat.

Of particular concern is the potential surge in the rate of type 2 diabetes, especially among minorities. Blacks and Hispanics are more apt to be overweight and impaired glucose tolerance is common among children who are very obese, the researchers explain.

"The increase in the prevalence of obesity is clear. The potential health benefits from reduction in overweight and obesity are a matter of considerable public health importance," Dr. Flegal and colleagues conclude. *JAMA 2002;288:1723-1732,1772-1773.*

XIV. Många amerikaner har idag förstadium till diabetes.

(Från www.DrMercola.com)

Many Americans Have Pre-Diabetes

The good news is diet and exercise can help eliminate the insulin-resistance syndrome, and a few simple tests can tell doctors and patients who is at risk.

What happens when to a person with insulin-resistance syndrome?

In insulin resistance syndrome a person loses her ability to manage insulin effectively. The syndrome, if not treated with lifestyle changes, can develop into:

- Heart disease
- Non-alcoholic fatty liver
- Possibly some cancers, such as colon or ovarian cancer

How is insulin-resistance syndrome diagnosed?

Measurements of weight, blood pressure, cholesterol and glucose tolerance can determine if a person is at risk for the syndrome..

How do you reverse the syndrome?

Achieving and maintaining a healthy weight through diet and exercise will put most people on the road to reversing the syndrome.

American Association of Clinical Endocrinologists August 25-6, 2002

Från www.diabetesincontrol.com

1/3 of Americans Have Pre-Diabetes Syndrome

That's more than 60 million Americans that could become diabetic

As many as one in three Americans has a condition called insulin resistance syndrome, putting them at high risk of diabetes and heart disease, a panel of doctors said on Tuesday.

But diet and exercise can take care of the condition in many, if not most, cases, and a few simple tests can tell doctors and patients who is at most risk, the experts said.

In insulin resistance syndrome, also known as metabolic syndrome or syndrome X, a person loses his or her ability to manage insulin effectively. More and more people--children as well as adults--are developing the condition as the population eats more and exercises less.

Left untreated, the syndrome can develop into diabetes as well as heart disease, non-alcoholic fatty liver and perhaps some cancers, including colon and ovarian cancer.

On Tuesday a committee of experts from four top medical organizations--the American College of Endocrinology, American Association of Clinical Endocrinologists (news - web sites), American Medical Association and the American College of Physicians-American Society of Internal Medicine--issued official guidance on how to diagnose the condition.

"As the prevalence of insulin resistance syndrome has skyrocketed 61% in the last decade, it is crucial that medical professionals have consistent and definitive criteria to assess this serious condition," Dr. Daniel Einhorn of the Scripps Whittier Institute for Diabetes in La Jolla, California, and co-chair of the panel, told a news conference.

"We feel that as many as one in three Americans have this," Einhorn added in an interview. Einhorn said paediatricians report that 7- to 10-year-old children are developing metabolic syndrome, obesity and type 2 diabetes--once seen only in adults.

"We never saw this before," Einhorn said. "Paediatricians are having to learn about adult medications."

No single test can identify insulin resistance syndrome, but measurements of weight, blood pressure, cholesterol and glucose tolerance can. One quick check that people can do at home is waist circumference, the experts said--men with 40-inch waists and women with 35-inch waists are at higher risk.

Details are available on the Internet at <http://www.aace.com>.

Other indications a person may have insulin resistance syndrome are polycystic ovary syndrome, which Einhorn believes may affect up to one in 10 women. The condition is marked by infertility, excess facial hair and obesity.

In addition, there is a skin condition, acanthosis nigricans, linked with the syndrome. What can patients do if diagnosed with insulin resistance?

"It doesn't require draconian measures," Einhorn said. Losing 5% to 10% of total body weight will help a good deal--and studies show that as little as 20 minutes of extra exercise such as brisk walking, 5 days a week, can help most people lose that much weight.

It is not necessary to cut out all sweets, he added. And like many doctors, Einhorn does not believe claims that carbohydrates are to blame for obesity.

"It is not any one thing that's the culprit," Einhorn said. "It's not just the fast food. It's not just the pastries. It's a combination of genetics and the diseases of modern living--obesity and sedentary living."

Cost of Diabetes is Exploding

Cost of medical care for a person with diabetes: \$10,071 per year, compared with \$2,669 for a person without diabetes.

Diabetes is an expensive disease to treat, and it's getting pricier as people develop the illness and its complications earlier, says Matt Petersen, a cost-analysis expert with the American Diabetes Association.

An analysis of the cost of treating diabetes is being done, and preliminary data shows "the cost of treating people with diabetes is growing disproportionately to increases in other health care costs." A 1998 analysis by the American Diabetes Association shows:

--Direct medical costs attributable to diabetes: \$ 44.1 billion.

--Indirect costs, including factors such as days of work lost and permanent disability: \$ 54.1 billion.

--Cost of medical care for a person with diabetes: \$ 10,071 per year, compared with \$ 2,669 for a person without diabetes.

As people develop diabetes at younger ages, the overall price tag balloons, Petersen says. Kidney dialysis, for instance, costs up to \$ 44,000 a year, according to a 1999 study. If people can postpone kidney failure by five years through delay of diabetes or better control of the illness, the savings in dollars can be significant, he says.

Prevention has a bottom line cost, too, Petersen says, although it's harder to estimate. Prevention could include the price of access to a gym, nutrition education, a personal trainer, a diabetes educator.

"In the short term, there could be considerably higher health costs, but you prevent complications years later," Petersen says. *Source: American Diabetes Association*
Publication date: 2002-10-24

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DID YOU KNOW

From 1999 to 2001 the use of insulin pen needles in the U.S. grew from 7% to 14% of people who inject insulin

XV. Skall diabetes förebyggas eller behandlas?

Det bedrivs forskning runt världen för att behandla diabetes genom att tranplantera celler till bukspottskörteln. Men vi måste fråga oss om inte annan förebyggande behandling är så mycket klokare och bättre. Det finns en risk att vår vårdsektor styrs in mot behandling när sjukdomar väl debuterat i stället för prevention. Detta beror bl a på att läkemedelsföretag m fl ser större marknader i behandling än i prevention, som riskerar att minska efterfrågan av insatser och läkemedel. Följande artikel om diabetes och transplantation är tankeväckande.

(Från hemsidan www.DrMercolas.com)

More Insanity -- Pancreas Transplants for Type 2 Diabetics

US transplant centers aren't just considering Type 1 diabetics when they review transplant cases - they are picking the most robust candidates, the ones most likely to survive the transplant process. These candidates can sometimes include Type 2 diabetics.

The researchers surveyed 44 transplant centers in the US and found that of all the transplant recipients in 1999, fewer than 2 percent were Type 2 diabetics. This percentage is notable because Type 2 diabetics are not typically considered for transplants, since it can be effectively maintained through other means.

Type 1 diabetics are more likely to receive transplants because their version of the disease typically shows up in childhood, from an immune system attack on the pancreatic cells that produce insulin.

What role does insulin play in type 1 and 2 diabetes?

Insulin is an important hormone in the body. Insulin is necessary for the body to be able to use sugar. Sugar is the basic fuel for the cells in the body, and insulin takes the sugar from the blood into the cells. When glucose builds up in the blood instead of going into cells, it can cause two problems:

- Right away, your cells may be starved for energy.
- Over time, high blood glucose levels may hurt your eyes, kidneys, nerves or heart.

In type 2 diabetes, either the body does not produce enough insulin or the cells ignore the insulin. In type 1 diabetes, the body does not produce insulin.

How do people get type 1 diabetes?

In type 1 diabetes, the pancreas, an organ near your stomach, produces insulin. The pancreas contains cells called beta cells. Beta cells have a vital job: They make insulin, a hormone that helps cells take in the sugar they need. Sometimes, the beta cells get wiped out and cannot produce insulin anymore.

Many things might have killed your beta cells, but in most people with type 1 diabetes, the immune system makes a mistake. Cells that normally protect you from germs attack your beta cells instead. The beta cells die and you can't make insulin. Sugar builds up in your blood, and you get diabetes. In some cases, a new pancreas -- or a transplant of insulin-producing pancreatic cells -- can help control the disease.

How do people get type 2 diabetes?

In type 2 diabetes by far the more common form, the pancreas is usually producing insulin, but the body cannot use it properly. The condition is closely associated with obesity and is most often seen in middle-aged and older adults.

Diabetes Care October 2002;25:1896

DR. MERCOLA'S COMMENT:

I am constantly amazed at how many type 2 diabetics are placed on insulin to further control their blood sugars by well-intentioned physicians. Unfortunately this uninformed and absurd therapy is a prescription for disaster that will rapidly accelerate the death of virtually anyone who is placed on it. The problem in type 2 diabetes is not that there isn't enough insulin, but that the insulin present doesn't work very well due to impaired insulin receptor sensitivity.

So when type 2 diabetics are placed on insulin, their blood sugar drops, but their insulin levels rise. The problem here is that the increased insulin levels increase the diabetic's appetite and they gain even more weight.

The weight gain contributes to a worsening of their insulin receptor dysfunction and their blood sugar continues to rise, thus resulting in higher and higher levels of insulin.

The ultimate insanity is giving the type 2 diabetic a pancreatic transplant. Not only does this not solve the problem, but also the diabetic, whose immune system is already impaired, will be placed on immunosuppressive drugs to control the rejection. These costly drugs need to be taken for their entire life and will invariably increase their risk of cancer.

So what is the solution?

Fortunately it is quite straightforward. One needs to reduce, NOT increase insulin levels and this is typically done by radically reducing the foods that cause one to make insulin. This is primarily grains and sugars.

Exercise will do wonders to improve the insulin receptor sensitivity, as will omega-3 oils and sleep.

Anm 1: Ansvariga myndigheter försöker vinna tid och försvara sin ovilja att ändra kostråden med att man måste invänta fler forskningsresultat. Forskaren Walter Willett kommenterar detta så här: "Scandalous," says Willett. "They say, 'You really need a high level of proof to change the recommendations,' which is ironic, because they never had a high level of proof to set them." (Science 2001 291: 2536-2545)

Anm 2: När vi ökar vårt fettintag går det så till att vi *inte* skall undvika naturligt feta livsmedel, t ex fet fisk, nötter och frukter med fett, ägg, smör, ost, grädde etc. Man skall däremot undvika produkter som innehåller kemiskt behandlade fetter, t ex chips, margariner, "Ädelvisp" etc.

I ett naturligt fett finns många viktiga näringsämnen. Men i kemiskt bearbetade fetter tas dessa bort eller reduceras. Det kan gälla de viktiga fettlösliga vitaminerna, antioxidanterna, växtsterolerna osv. De kemiskt processade fetterna i margariner har dessutom en manipulerad molekylstruktur, som är ett avsteg från en biologisk norm och som i flera fall visat sig innebära risker för hälsan. (Se <http://www.gunnarlindgren.com/frames.html>)

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