

diabetes **WATCH** philippines

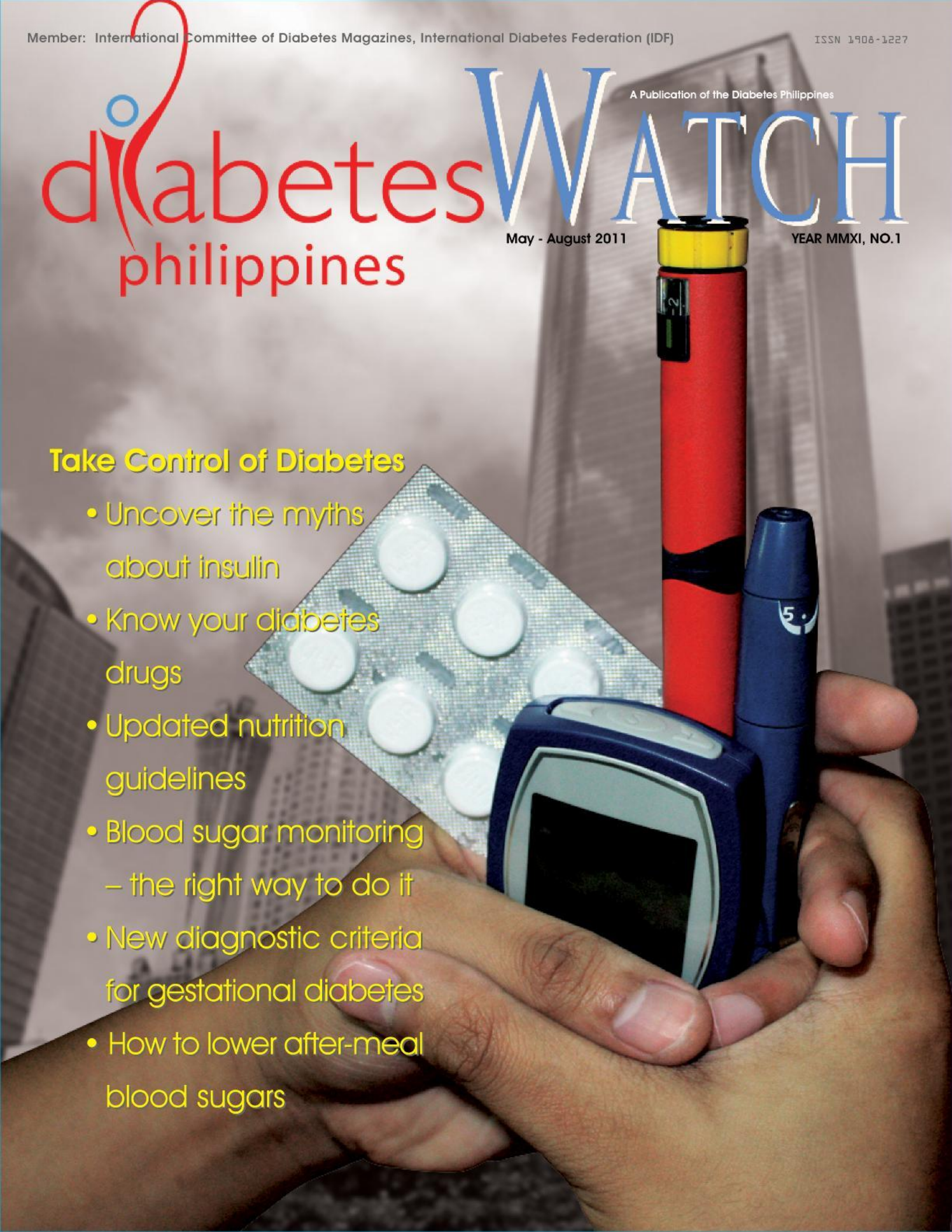
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May - August 2011

YEAR MMXI, NO.1

Take Control of Diabetes

- Uncover the myths about insulin
- Know your diabetes drugs
- Updated nutrition guidelines
- Blood sugar monitoring – the right way to do it
- New diagnostic criteria for gestational diabetes
- How to lower after-meal blood sugars





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From the EDITOR'S DESK



Outsmart Diabetes: Take Control

Every human being is the author of his own health or disease.

~Buddha

Diabetes kills. Each year, about 4 million people die from diabetes and its complications. Tens of millions are also disabled by diabetes-related heart disease, stroke, limb amputation, blindness, kidney failure and nerve damage.

The alarm bells have rung but have virtually gone unheard. The number of diabetes-stricken adults has more than doubled to nearly 350 million worldwide over the last three decades. This figure has skyrocketed from 153 million in 1980 to 347 million in 2008. While population aging and growth accounted for about 70% of the rise, the remainder was linked to unhealthy diets, obesity and physical inactivity. This burgeoning diabetes pandemic will surely burden health systems around the globe. Healthcare costs in terms of loss of life, limb, wealth and well-being will be unquantifiable. Therefore, we must all act now before diabetes cripples every man, woman and child on this planet.

Everyone needs to be empowered with knowledge about leading a healthy lifestyle to prevent diabetes and/or its sequelae. Persons with diabetes must arm themselves with the necessary tools for survival. In this issue, we cover information that patients need to equip themselves with such as proper nutrition, blood sugar monitoring, anti-diabetes medications, exercise tips and more.

Patients must take charge and become masters of their own health. Communities, healthcare providers and recipients alike should generate enough noise and action against diabetes before it silences any more of us...forever.

Joy
Joy Arabelle C. Fontanilla, MD
Editor-in-chief



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1. Fewer Filipinos with diabetes
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OUR VALUES

INTEGRITY *Above all, the nobility of our purpose.*

We serve patients, pursue education and conduct research with zeal and without regard for personal gain. Honesty and transparency rule our behavior in relating with fellow members, partners, supporters and other stakeholders of our organization.

EXCELLENCE *Passionate workers, we expect from ourselves only the best effort.*

We continuously upgrade our knowledge and skills, adopt ever-improving technologies, and expand the reach of our services to attain our vision. Our mentors, generous with their knowledge and time, model excellent leadership.

COOPERATION *We work as one for the common good, enjoying the camaraderie, observing respect and maintaining loyalty even in dissent. We partner with institutions and other specialties that aim for the same goal. Caring for everyone's well being, we make work pleasant for members and staff.*

COMMITMENT *Persistent in our search for solutions to diabetes. We have selflessly devoted five decades to the improvement of diabetes care, education and research to prevent the onset of the disease in high risk individuals and the complications in those already afflicted by it. We take on responsibilities with diligence until their successful conclusion.*

Your PRESIDENT SPEAKS



I would like to start my message for this issue by thanking the new editors and staff of DiabetesWatch for accepting the daunting task of bringing to you this magazine. We aim to maintain the high quality of standard set by the previous staff of the magazine.

This issue's theme "Take Control of Diabetes" encourages us to take charge of diabetes in order to reduce its negative impact on the people affected by this condition. Many people consider that once they are diagnosed to have diabetes, they are doomed. It is like being handed a death sentence. This is what happens when we let diabetes take control of our lives. What most people do not realise is that people with diabetes can still enjoy their lives to the full by learning how to take control of diabetes!



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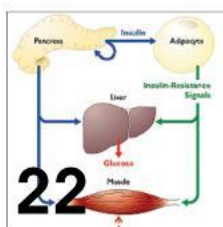
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Are you overweight or obese? Especially if you have a waistline of greater than 90 cms. if you are a male, or greater than 80 cms. , if you are female. You have abdominal obesity if your answers to the foregoing are yes. To continue with the questioning - do you have prediabetes or diabetes? Are your cholesterol and triglyceride levels high? Is your blood pressure also high? Again, if your answers are yes, then you must have the Metabolic Syndrome (MS).

If you have MS, talk to your physician to check your liver enzymes, SGPT and SGOT. If the ratio of SGPT and SGOT is greater than 1.0, then you must have fatty liver.

What is NAFLD and NASH?

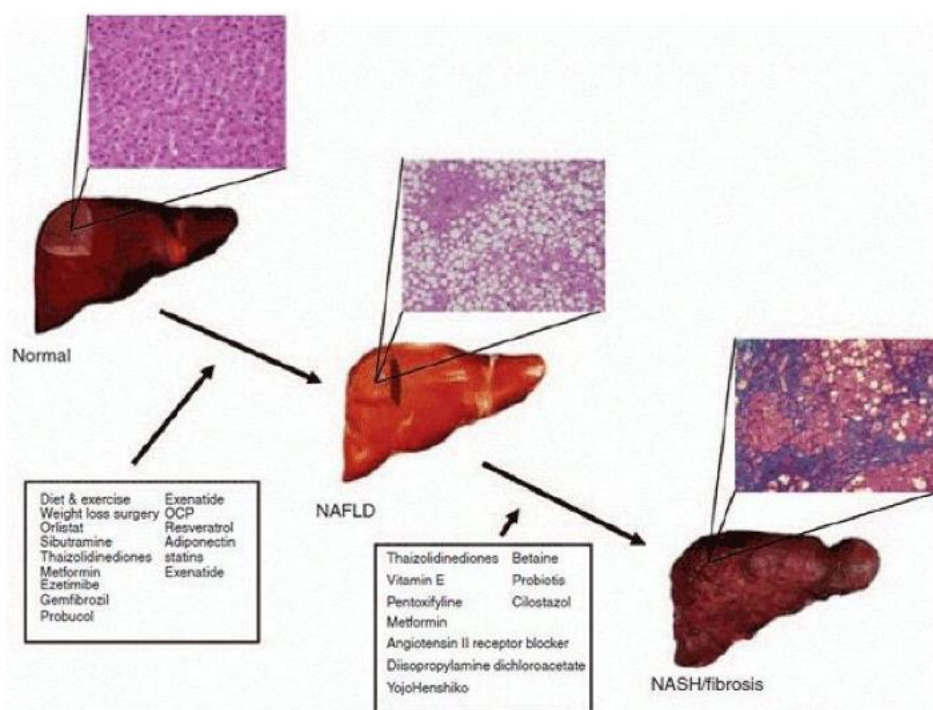
Accumulation of fat in the liver cells in the non-alcoholic is called non-alcoholic fatty liver disease (NAFLD). This is due to insulin resistance or the diminished effects of insulin in the body that leads to increased levels of insulin, called hyperinsulinemia. Hyperinsulinemia causes a lot of bad effects in the person, such as heart disease, stroke, thickening of the walls of the blood vessels, and not fatty liver. NAFLD may progress to NASH (non-alcoholic steato-hepatitis), which along with the accumulation of fat in the liver cells involve inflammation of the liver (hepatitis), destruction (necrosis) of liver cells, and scarring (fibrosis) of the liver. It can progress to severe liver disease, including cirrhosis or cancer, which is the last stage of NAFLD.

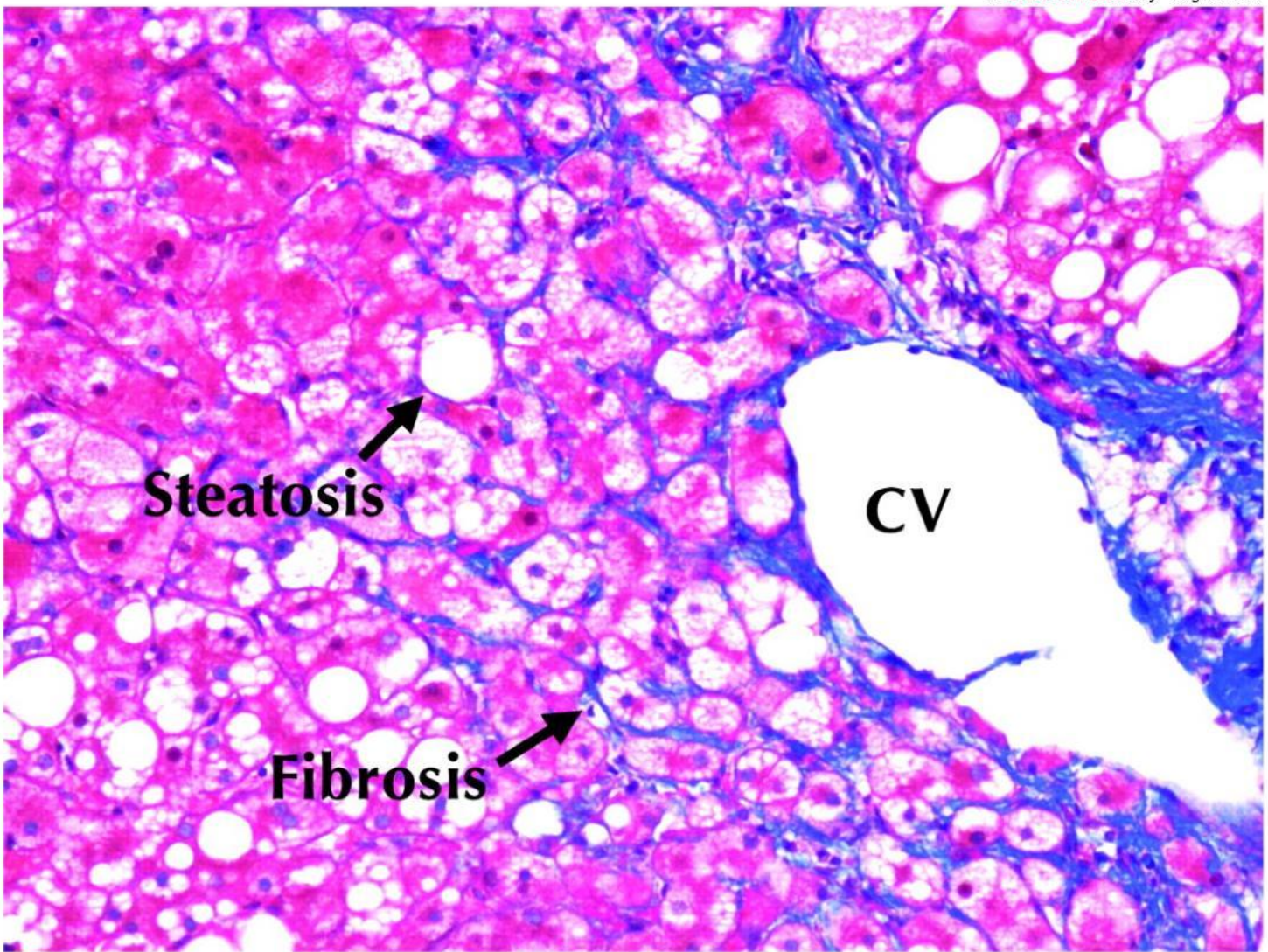
Estimates of the number of cases of NAFLD among the obese and patients

with type 2 diabetes mellitus, suggest that 90% have simple fatty liver, 20% progress to NASH, and 10% have cirrhosis. Among those with cirrhosis, primary liver cancer develops at a rate of approximately 1-2%/year.

If the liver enzymes (SGPT, SGOT) are

elevated in patients who are insulin resistant, then an ultrasound may be recommended where fatty liver may be demonstrable. A history will reveal no hepatitis in the past, no drugs can cause elevations of the liver enzymes, and importantly, will have history of alcoholic intake which is insignificant,





Left: Histologic features of fibrosis in nonalcoholic steatohepatitis (NASH). Trichrome stain of liver (magnification ? 200) demonstrating macrovesicular steatosis and fibrosis, most prominent in zone 3 near the central vein (CV) of the hepatic lobule. Typically early fibrosis is pericellular and perisinusoidal, giving the appearance of "chickenwire." Right: Histologic features of necrotic inflammation in NASH. Hematoxylin and eosin stain of liver (magnification ? 400) with injured ballooned hepatocytes (B) and a mild neutrophilic infiltrate (N). Aggregations of Mallory's hyaline (MH) comprised of eosinophilic cytoskeleton filaments are also observed. (Photo taken from CMAJ - Medical Knowledge That Matters)



(fewer than 2-3 drinks/day).

Weight loss is still the best way to diminish fat accumulation in the liver, and if a significant weight loss results in the decrease or normalization of the liver enzymes, the diagnosis of NAFLD is practically assured. Only a liver biopsy, however, can confirm the diagnosis of NAFLD and NASH and

determine the severity of the disease. Whether or not, it is vital to perform a liver biopsy in suspected NAFLD or NASH is still debated among liver specialists, since no specific treatments are available. A small study in San Antonio, Texas showed a certain drug, pioglitazone, to have beneficial effects on the chemical and histological picture of NAFLD. Correcting the elevated cholesterol, triglycerides and blood sugar can also be beneficial.

The important thing is to know if you have NAFLD. Again, if you have the metabolic syndrome, then include the determination of liver enzymes in your tests. ○

DIABETES QUERIES

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Diabetes Watch (DWatch) through the years had played a role in educating our lay readers through interesting and updated articles on diabetes, obesity and other related diseases. DWatch will continue its thrust being YOUR diabetes magazine despite some changes in its staff. As a fresh starter we have selected the theme "TAKE CONTROL OF DIABETES" for this issue.

Why do I have to test my blood sugar so often?

Blood monitoring guides you in maintaining day-to-day control of your diabetes. It detects high's

and low's in your blood sugar level which will help your doctor alter your treatment regimen accordingly. Type 1 diabetes patients may need to check on their blood sugar more often since they can usually have wide fluctuations of glucose levels in a day. Quite different with Type 2 diabetes whose monitoring will depend on the medications that they are taking. If a patient is on insulin, he may be asked to test blood sugar more often than if he is taking antidiabetes tablets.

I am diabetic and obese, my doctor said I need to lose weight but there seems to be no safe pills for weight loss, can I try white vinegar?

White vinegar for centuries had been known being a sterilizing agent up to a cooking mate and now has claims to help in weight loss. Apple cider vinegar, a type of white vinegar is one of the most common type of vinegar used for losing weight. It has strong detoxifying and purifying agents which can break down mucus in the body. The acetic acid content was shown by researchers in Tokyo to cause genetic production of proteins that help break down fat in mice studies. Though studies seem promising, they are all preliminaries done on animals and cells in laboratories. Human studies are still limited and would warrant larger scale studies before we can truly say that this old folk condiment has health benefits such as weight loss.

My doctor had started me with insulin injection for better blood sugar control, can I still go back to my oral tablets or will I be on insulin for the rest of my life?

Shifting to insulin regimen does not mean you will be on insulin for life. There are several reasons why patients are placed on insulin by their doctors. One, diabetes oral medications have failed to maintain good glucose control due to beta cell exhaustion (pancreas not producing enough insulin from beta cells) or insulin resistance (decrease

uptake of insulin in the muscles and fat tissues). Second, kidney and liver functions may be deranged and can do more harm if one is taking too many tablets. One can still go back to the tablet regimen once blood glucose had improved as shown by decreasing insulin requirement and most importantly, if one has intact kidney and liver functions which serve as our body's reservoir after drug intake.

I used to exercise regularly but ever since my doctor had shifted me to insulin injections, I noticed I have episodes of lightheadedness and cold clammy perspiration during my routine exercises.

What you are experiencing are the tell tale signs of hypoglycaemia (low blood sugar). Your body utilizes more sugar during exercise hence, your body is more sensitive to insulin. Make sure that you do not inject insulin prior to exercise and if possible, measure your blood sugar before and after exercise. To prevent the risk of hypoglycaemia, you may carry a candy or fruit juice during exercise. Don't forget also to drink plenty of fluids before, during and after exercise to stay well-hydrated.

I think my diet is not working for me because my blood sugar is still uncontrolled. There are times I am scared to eat anymore.

Maintaining a good diet to get your blood glucose down is one of the biggest challenges both for the doctor and patient. Remember that you have to have a balanced diet with the right distribution of carbohydrates, proteins and fats. It will depend on your profile on how the different components will be apportioned. Skipping meals will lead to wider swings in your blood sugar. You just have to keep in mind the right type, right timing and the right amount of food that you must eat. Discuss with your doctor and dietitian the type of diet that will suit your lifestyle. ○

For more queries and suggestions, feel free to email the writer at xygrenc@yahoo.com



Picture taken from novonordisk.com

Injection Apprehension: Myths & Misconceptions About Insulin

Cecilia A. Jimeno, MD
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Dr: "Sorry, kailangan mo na talagang mag-insulin."

Pt: "Dok, acute na ba ang sakit ko? Kailangan ko na po ba talagang mag-insulin? Puwede bang next month na lang? Magtry ako ulit ... please?"

This is a common dialogue in the clinic between doctors and their diabetic patients. The patient on hearing that he now needs to inject insulin reacts to this news as if he is receiving a death sentence. The doctor on the other hand before this session, has actually used the threat of insulin injections in order to ensure the patient's compliance with treatment. "Follow your diet. Exercise daily. Take

your oral medications, or else I will give you insulin!"

These scenarios illustrate the fear that many patients have about insulin injections. The diabetic resists and bargains and postpones, and finally fails to come back for the regular visit due to the fear of failure and the punishment of finally having to use insulin. Much research and innovation has gone into improving the way insulin is injected but not many patients know about them. With education and counseling, many of the myths, misconception and apprehensions about this most effective treatment can be addressed. This article hopes to address

these barriers to insulin treatment. What are some of these myths and misperceptions?

1. Once a diabetic starts using insulin, he will become dependent ("addicted") to the drug and he could die if he stops insulin all of a sudden.

NOT TRUE. There are 2 main types of diabetes: Type 1 or insulin-dependent diabetes mellitus, and Type 2 DM or non-insulin dependent diabetes mellitus. Type 1 diabetics comprise less than 5% of diabetics in the Philippines. Type 1 DM typically occurs in the young and patients with this type of diabetes need insulin for



survival. They cannot skip insulin injections as they may go into a life-threatening state of high blood sugar called diabetic ketoacidosis.

On the other hand, the greater majority of diabetics are classified as having Type 2 diabetes and are maintained only diet and exercise, or oral anti-diabetic agents. Many will not need insulin to reach their blood sugar targets. Some however are advised to start insulin to be able to improve their blood sugar levels since insulin is the most effective treatment. If they occasionally accidentally skip their shots, there is little clinical consequence- they will not die as they are not "dependent" on insulin to maintain normal daily function.

2. Insulin is difficult to use; only nurses and doctors should inject it to the diabetic patient.

NOT TRUE. Nowadays, insulin is not only available in vials or bottles, to be aspirated by syringes using long needles. Patients injecting insulin often

feel embarrassed to inject insulin for fear of being accused of using illicit drugs. Quoting from Dr. Jill Crandall, professor of clinical medicine and director of the diabetes clinical trial unit at the Albert Einstein College of Medicine, in the Bronx, N.Y., "today, insulin comes in pen injectors that are easy to carry with you, don't require refrigeration, and can be used discreetly, often just once a day". "There are a large variety of insulin and insulin regimens that are much more convenient than they used to be," she adds. Insulin pens are easy to use, and the technique of self-injection can be learned by patients young or old.

3. Insulin can cause dangerously low blood sugar

PARTLY TRUE ONLY BUT UNLIKELY. Low blood sugar with insulin use typically happens because of 2 reasons: (1) skipping miss or a mismatch between the peak of insulin action and the peak of blood sugar i.e. rapid acting insulin is injected but eating is delayed;

(2) high insulin doses that are not matched to the food intake or activity. An example of the second scenario is when a diabetic injects insulin and eats the usual amount of food but decides to exercise soon after eating. The increased activity may make insulin absorption faster than usual, even while the food is being digested and as such, sugar has not yet been absorbed in the blood. People with Type 2DM have a lower risk of hypoglycemia than Type 1 diabetics who have higher doses and who may lack the counter-regulatory hormone glucagon. Most people will recognize the symptoms of low blood sugar, which include shaky hands, palpitations, cold sweats and extreme hunger. When recognized early and managed by consuming a bit of sugar- half a cup of juice or regular soda, a few hard candies, or glucose tablets, these symptoms can be quickly reversed.

4. Taking insulin means you have 'failed'

NOT TRUE. Many people who adhere well to their diet, who exercise and attempt to lose weight will still need insulin even if just for a short period of time. Some of the common reasons for using insulin is pregnancy, serious infections; having heart attacks or strokes; and major surgery. While many people do need to start insulin because their oral drugs are not anymore sufficient to achieve, response to drugs may vary even among the most compliant. This is not necessarily a failure on the part of the patient but is instead a failure of therapy.

5. Insulin injections hurt

NOT TRUE. "This is absolutely false," says Dr. Crandall. "With the small fine needles we have today, insulin injections are close to painless, if not painless." In fact, most people would say that the finger pricks used to measure blood glucose levels hurt more than insulin injections. "When people get their first injection, they

Conversations about insulin should not happen just before the option of injecting is given; these talks should be started early in the course of the disease when patients are well and able to fully appreciate the benefits of insulin.

often say, 'I can't believe it didn't hurt,'" says Dr. Crandall. There may not even be a need to use syringes; there are insulin injector pens which are available in the market, which are actually prefilled syringes. The steps involved in injecting have been reduced to dialing the dose, snapping on a tiny, thin and short needle, and then injecting painlessly. "Walang aray!" (promise!)

P.S. If it does hurt to inject insulin please inform your doctor. Your insulin injection method may be faulty or the insulin may be too cold, causing pain.

6. Insulin will make you gain weight

PARTLY TRUE but manageable. There's some truth to this one. Some people with type 2 diabetes may gain weight after starting insulin therapy. However, the insulin therapy itself does not induce weight gain. It's because if a diabetes treatment is working, the body begins to process blood glucose more normally, and the result can be weight gain. (This is one reason unexplained weight loss can be an early symptom of diabetes.) The good news is that this tends to level out as insulin therapy continues, and the weight gain may be transient, explains Dr. Crandall.

7. Insulin can cure diabetes

NOT TRUE. Currently there is no cure for diabetes. Instead, insulin is a method of controlling diabetes. Insulin supplements what the beta cells of the pancreas cannot make. Insulin converts glucose into energy and is used to manage diabetes and control blood glucose levels.

8. Insulin means my diabetes is "serious" and therefore, insulin is a treatment of last resort.

TRUE FOR SOME BUT HOPEFULLY NOT TRUE FOR MOST DIABETICS.

The truth is diabetes is a serious disease no matter how you treat it or even if you do not feel any symptoms. High blood sugar can lead to complications that damage the heart, kidneys, nerves and eyes. In the Philippines it is the number one cause of end stage renal disease leading to dialysis. And it is often said that a diabetic's heart is much like that of someone who has had a heart attack. That's how serious diabetes can be even for people who are not using insulin. The problem is

sugar control." High blood sugar leads to tissue damage and therefore, diabetics should not spend too much time undergoing treatments that aren't getting your blood sugar under control. Some guidelines even say that newly diagnosed diabetics should get to good control within six months of their diagnosis.

Conversations about insulin should not happen just before the option of injecting is given; these talks should



that people with diabetes often do not realize the gravity of the problem and fail to comply with their treatment. The point is to make sure your blood sugar is under control, whether it takes diet, exercise, pills, insulin, or all of these combined.

Doctors too, are sometimes part of the problem. They decide to start insulin therapy when it is too late, and therefore patients get the idea that it is a treatment of last resort. This is called treatment inertia- continuing with the current therapy even if it is already known that blood sugar control is inadequate. Again, Dr Crandall says, "By the time a person with type 2 starts insulin therapy, they likely already have diabetes-related complication because of poor blood

be started early in the course of the disease when patients are well and able to fully appreciate the benefits of insulin. Starting insulin sooner may avoid complications; may actually make oral medications work better (and be effective longer); or allow you to use a less-complicated insulin regimen for a longer period of time.

Still fearful of insulin? Nothing is more reassuring than good information; ask your doctor about your concerns regarding insulin. Maybe, you will be one of those who will say, "wala ngang aray dok!" ○

References:

1. <http://www.health.com>
2. http://www.dlife.com/diabetes/information/type-1/myths_misconceptions/



Know Your Diabetes Drugs: Oral Medications for Type 2 Diabetes

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We are in a midst of a diabetes epidemic. As the number of people diagnosed with the disease increases year by year, so too have the number of the different drugs used to treat diabetes also grown. In order to keep abreast of the increasing treatment options that are available, it would be useful to revisit some of our old reliables and at the same time, get to know the new medications. While lifestyle modification, including diet modification, weight loss, and increase in physical activity, are the cornerstone of diabetes management, most patients will require pharmacologic therapy to achieve adequate blood sugar control. The development of diabetes have been attributed to different pathophysiologic mechanisms including increased hepatic glucose production, insulin resistance and impaired insulin secretion, and the different therapeutic

classes of anti-diabetes medications seek to address these defects.

Agents that Decrease Hepatic Glucose Production

1. Biguanides (Metformin)

Metformin helps to control blood sugars by primarily decreasing hepatic glucose production. It also increases peripheral insulin sensitivity. It does not cause weight gain, and on its own, rarely causes hypoglycemia. It can be combined with sulfonylureas (SU), meglitinides, thiazolidinediones (TZD), DPP-4 inhibitors, and insulin. Common side effects include gastrointestinal complaints, diarrhea, nausea and vomiting. A rare and potentially fatal complication of metformin use is the development of lactic acidosis. It is characterized by decreased blood pH and electrolyte disturbances. Metformin is contraindicated in patients with Type

1 diabetes, renal impairment (serum creatinine > 1.5 mg/dl in males and 1.4 mg/dl in females), congestive heart failure, and metabolic acidosis.

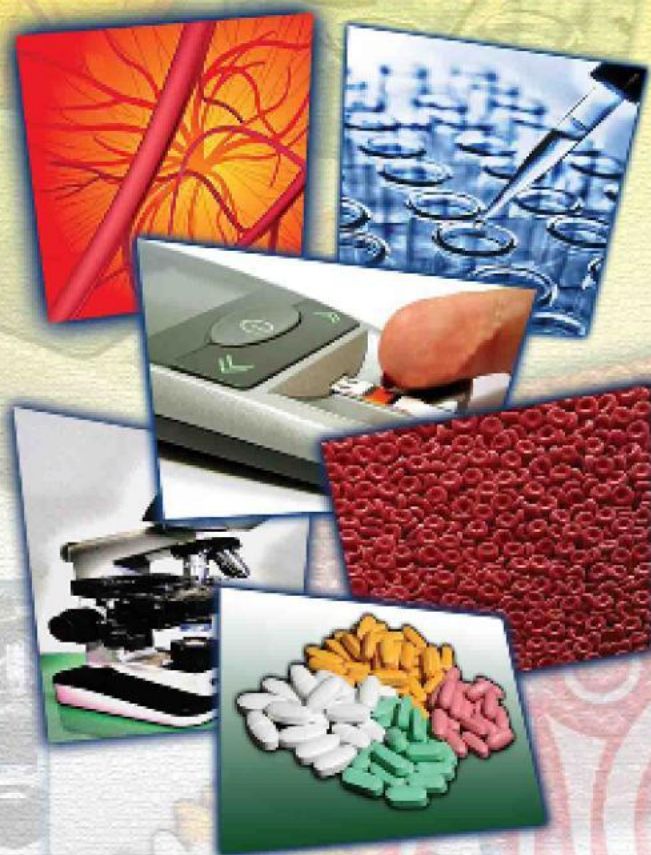
Agents that Increase Insulin Sensitivity

1. Thiazolidinediones

Thiazolidinediones or TZDs are drugs that increase insulin sensitivity in the peripheral tissues (skeletal muscle and adipose tissues). To a lesser extent, it can also increase hepatic insulin sensitivity. They activate peroxisome proliferator-activated receptor (PPAR) gamma, a nuclear transcription factor that is important in fat cell differentiation and fatty acid metabolism. TZDs are also known to have some beta-cell preservation properties. TZDs can be combined with SUs, metformin, DPP-4 inhibitors, and insulin. Common side effects include weight gain, edema, anemia,

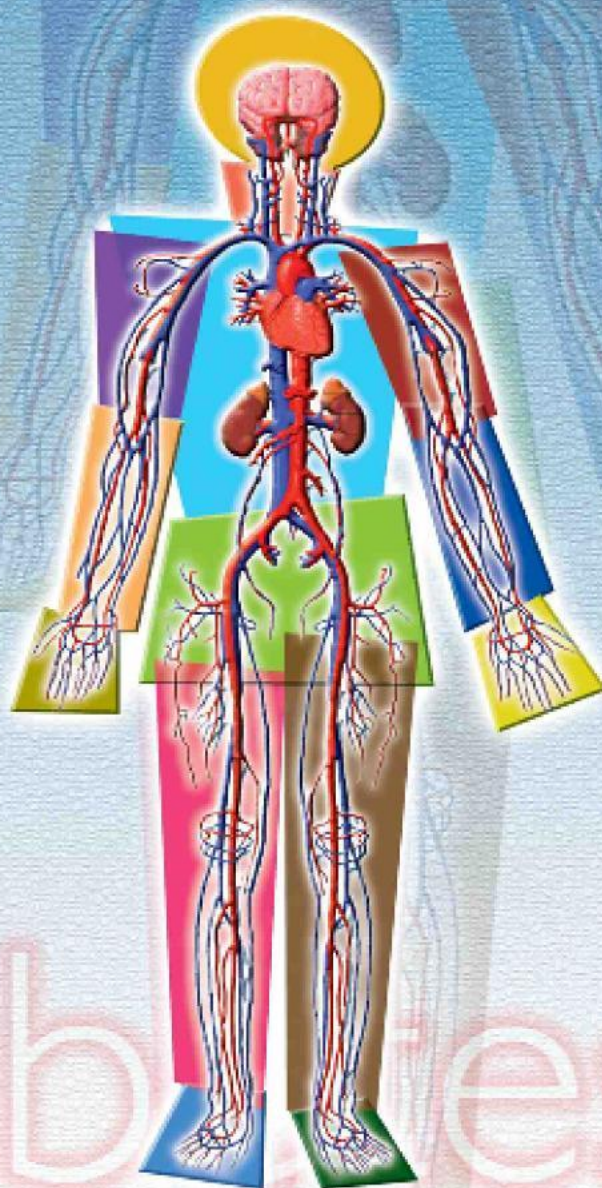


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upper respiratory tract infection, elevation of liver enzymes, and heart failure. Patients with type 1 diabetes, hepatic impairment and history of congestive heart failure should not use these medications. Examples of TZDs are rosiglitazone and pioglitazone. There are some studies that have shown that rosiglitazone increases the risk of heart attacks. As of September 2010, the US FDA has restricted access to rosiglitazone to those patients currently taking rosiglitazone and benefiting from the drug. In the Philippines, rosiglitazone has been withdrawn from the market. In April 2011, an interim report of a 10-year epidemiological study on the risk of developing bladder cancer with pioglitazone showed that the greatest risk for bladder cancer was among patients who took pioglitazone the longest and at the highest cumulative doses. As of June 2011, the US FDA revised the prescribing information for pioglitazone. It is now recommended that pioglitazone should not be prescribed for patients with active bladder cancer. It should be used with caution in patients with a history of bladder cancer.

Agents that Increase Insulin Secretion

There are 3 classes of oral medications that increase the secretion of insulin

from the pancreas.

1. Sulfonylureas

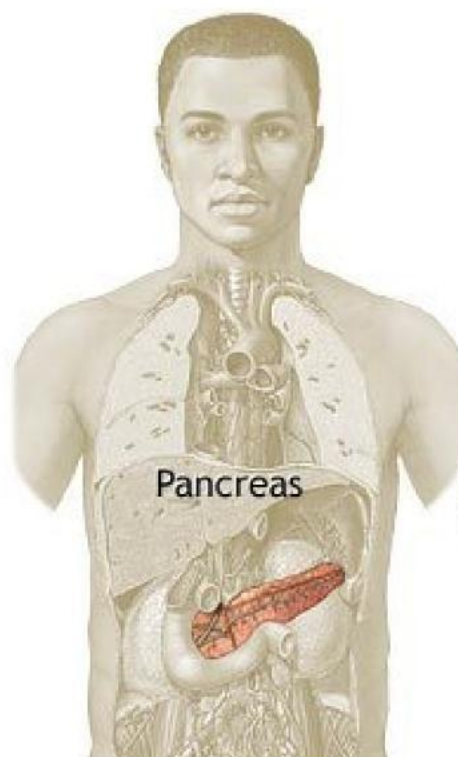
The sulfonylureas (SU) are oral medications that, as a class, stimulate the release of insulin from the pancreas by binding to the SU receptor on the beta cells. Additionally, they may also may also decrease the rate of hepatic glucose production, increase insulin receptor sensitivity, and increase the

number of insulin receptors. SUs can be combined with other oral medications, like metformin, pioglitazone, DPP-4 inhibitors and the GLP-1 agonists. Common side effects of this class of medications include hypoglycemia, weight gain, nausea and vomiting, and heartburn. These medications should not be given for patients with Type 1 diabetes. Examples of SUs are Glibenclamide, Glicazide and Glimepiride.

2. Meglitinides

Meglitinides are also oral medications that increase insulin secretion from the pancreas. However, they are more short-acting insulin secretagogues than the SUs. In this regard, they can restore early insulin secretion which makes them useful in controlling post-prandial glucose. Common side effects include hypoglycaemia, weight gain, nausea and vomiting, and joint pains. They can be combined with metformin and pioglitazone. They are contraindicated for patients with Type 1 diabetes. Examples of meglitinides are Repaglenide and Nateglinide.

3. Dipeptidyl Dipeptidase-4 Inhibitors



**Sulfonylureas help
your pancreas make
extra insulin**



The DPP-4 inhibitors are the newest class of therapeutic agents used for the management of diabetes. The incretin hormones GLP-1 (Glucagon-like Peptide 1) and GIP (Glucose-dependent Insulinotropic Polypeptide) increase insulin secretion from the beta cells of the pancreas in a glucose-dependent manner, especially after a meal. However, these hormones are rapidly degraded by the naturally-occurring DPP-4 enzyme. The DPP-4 inhibitors slow down the inactivation of the incretin hormones, thereby increasing insulin secretion from the pancreas. Additionally, these agents also reduce glucagon secretion from the pancreatic alpha cells. DPP-4 inhibitors can be used together with metformin, SUs and pioglitazone. Common side effects include upper respiratory tract infection, abdominal pain, nausea and vomiting. These medications should not be used by patients with Type 1 diabetes. Patients with history of pancreatitis are also not advised to take DPP-4 inhibitors. Examples of DPP-4 inhibitors are

sitagliptin, vildagliptin, saxagliptin, and linagliptin.

Agents that Decrease Glucose Absorption

1. Alpha-glucosidase Inhibitors

Alpha-glucosidase inhibitors prolong the absorption of carbohydrates from the intestines and help prevent rise of postprandial glucose. It can be used alone or in combination with other oral anti-diabetes medications. Common side effects are gastrointestinal in nature including flatulence, abdominal pain, diarrhea, and elevation of liver enzymes. It is contraindicated in patients with diabetic ketoacidosis, cirrhosis, inflammatory bowel disease, colonic ulceration, partial intestinal obstruction, and known marked absorptive impairment of the gastrointestinal tract.

Examples of alpha-glucosidase inhibitors are acarbose and voglibose.

As with any medication, patients should talk to their own doctors to find out which of these drugs is most appropriate for them. Patients should disclose all medications and/or supplements they are taking for possible drug interactions. Be aware of the different side effects and notify your doctor once you experience them. Patients should learn more about diabetes and all the important aspects of its treatment, including diet, exercise, medications, and getting regular eye/foot/medical exams. Laboratory tests should be performed periodically to check for side effects and monitor the response to treatment. ○

References:

AACE Diabetes Mellitus Guidelines, Endocr Pract. 2007;13 (Suppl1): 16-29.
Lewis JD, Ferrara A, Peng T, et al. Risk of Bladder Cancer Among Diabetic Patients Treated With Pioglitazone: Interim report of a longitudinal cohort study. Diabetes Care. Apr 2011;34(4):916-22.



NEW DIAGNOSTIC CRITERIA FOR GESTATIONAL DIABETES MELLITUS (GDM)

Pepito de la Peña, MD
National Kidney & Transplant Institute



In the early 1900s , before the availability of insulin , pregnant women diagnosed with diabetes are faced with a very high maternal and perinatal mortality. During those times , pregnancy was not recommended. During the advent of insulin in the 1920s , these mortality rates were lowered , and that pregnancy in diabetic patients should no longer be discouraged. Thus for a clinician and patient , it is particularly important to understand the pathogenesis of hyperglycemia and to treat it effectively.

Gestational diabetes mellitus is defined as any degree of glucose intolerance with onset on first recognition during pregnancy. However in 2010 , the International Association of Diabetes and Pregnancy Study Groups (IADPSG), an international consensus group with representatives from multiple obstetrical and diabetes organization recommend change to this definition.

The new method to screening and diagnostic criteria for GDM was also adopted by UNITE For Diabetes Philippines. This is a coalition of organizations caring for individuals with diabetes mellitus . These are Diabetes Philippines, Institute for Studies on Diabetes Foundation (ISDFI), Philippine Center for Diabetes Education (PCDEF) , and the Philippine Society of Endocrinology and Metabolism (PSEM).

The rationale for the change in guidelines is that there is an increasing proportion of young women who have personal risk factors such as obesity

but as yet unrecognized diabetes.

Here are the new guidelines for GDM.

Gestational diabetes - A diagnosis of gestational diabetes (GDM) can be made in women who meet either of the following criteria:

o Fasting plasma glucose ≤ 92 mg/dL [5.1 mmol/L], but < 126 mg/dL [7.0 mmol/L] at the first prenatal visit, or

o Two-hour 75 gram oral glucose tolerance test at 24 to 28 weeks of gestation with at least one abnormal result . FBS ≥ 92 mg/dl , 1 hour 180 mg/dl, 2 hour 153 mg/dl

The diagnosis of GDM should apply to women who meet the criteria of fasting plasma glucose ≤ 92 mg/dL [5.1 mmol/L] but < 126 mg/dL [7.0 mmol/L] anytime before 24 weeks of gestation.

The IADPSG as well as UNITE FOR Diabetes Philippines recommend use of a one step 75 gram oral glucose tolerance test. This method avoids the two step approach where a glucose challenge test is performed initially to identify a higher risk subset of women for diagnostic testing with a glucose tolerance test.

The group suggests screening be performed at 24 to 28 weeks of gestation . However, screening should be done as early as the first prenatal visit if there is a high degree of suspicion that the pregnant woman has unrecognized pregestational diabetes.

All pregnant women should be screened for gestational diabetes. It is recommended that screening be applied for all except for very low risk women.

This is important because several adverse outcomes have been associated with glucose impairment during pregnancy . Significantly , the risk of



these outcomes increases continuously as maternal glucose levels increase from the ≤ 75 mg/dL [4.2 mmol/L] range; there is no clear threshold that defines patients at increased risk . Patients with GDM are at risk for the following:

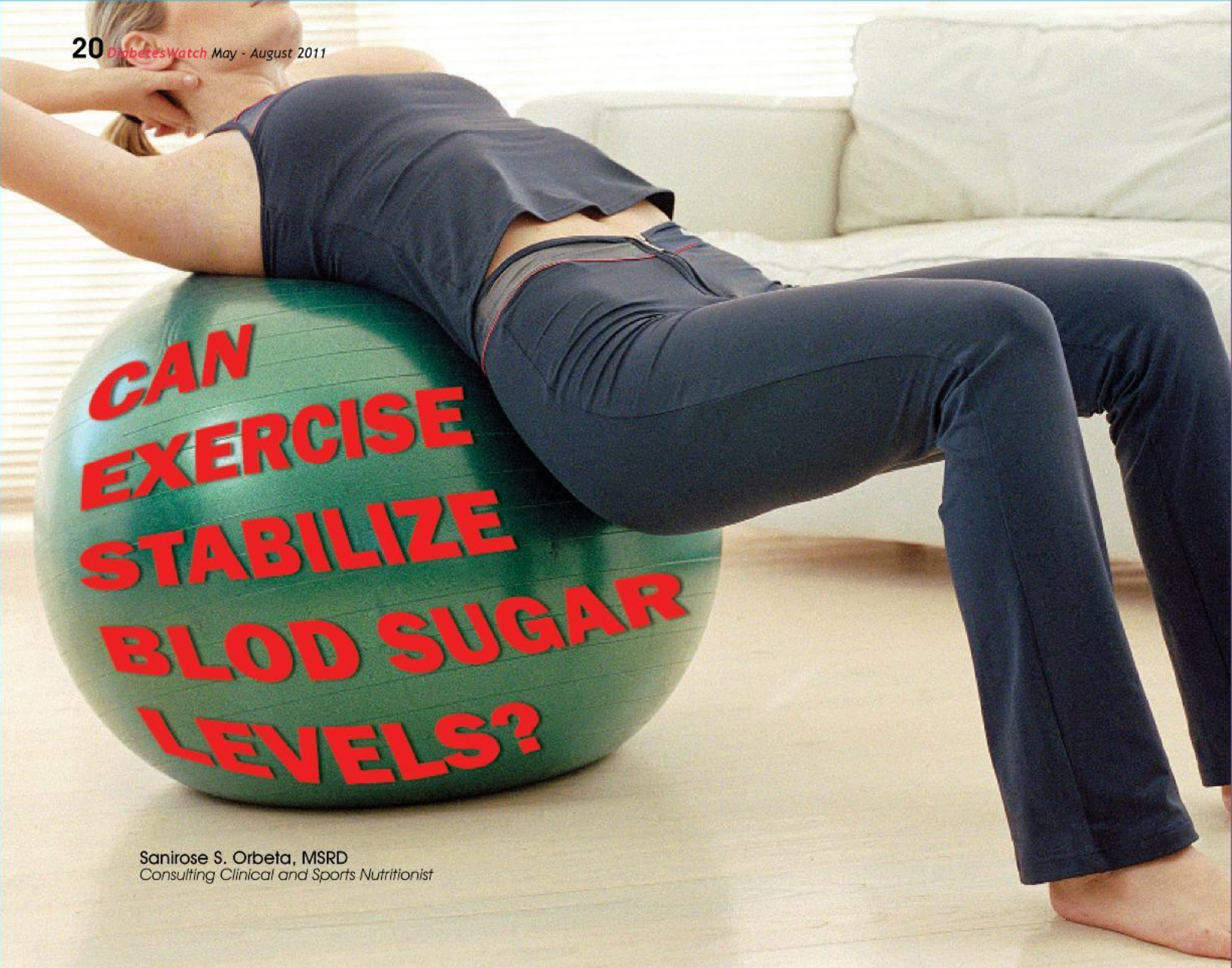
- o Preeclampsia
- o Polyhydramnios
- o Fetal macrosomia related to fetal adiposity
- o Birth trauma

o Operative delivery

o Perinatal mortality

o Neonatal metabolic complications (hypoglycemia, hyperbilirubinemia, hypocalcemia, erythremia)

Identifying patients with GDM is important because treating them early decreases maternal and perinatal mortality , and also of epidemiologic importance, GDM also has a 10 percent per year long -term risk of developing overt diabetes mellitus in the near future. ○



Sanirose S. Orbeta, MSRD
Consulting Clinical and Sports Nutritionist

HOW DOES PHYSICAL ACTIVITY AFFECT BLOOD SUGAR?

When one exercises, there is increased production of glucose transporter in the muscle cells. And, these signal the cells to return glucose to the bloodstream converting stored glycogen into glucose.

For those who are not used to physical activity, make sure to follow the healthy conditions we recommend in this article. Thus, brief hard strenuous exercise can raise the blood sugar, while prolong and relax exercise lowers it.

Here are some easy ways to start an exercise routine. If you are currently

sedentary and want to start exercising just enough to improve your risk factors for chronic diseases:

I. For Health

Frequency: 2 to 3 times a week
Intensity: 40 percent maximum heart rate
Duration: 15 to 30 minutes

II. If you want to be physically fit, exercise:

Frequency: 4 times a week
Intensity: 70 to 90 percent maximum heart rate
Duration: 15 to 30 minutes

III. If you want specifically to lose weight, exercise:

Frequency: 5 to 6 times a week
Intensity: 45 to 60 percent

Duration: maximum heart rate
45 to 60 minutes

RESTRICTIONS ON EXERCISE

Despite the benefits that exercise can have, an exercise program that isn't sensibly put together can have disastrous results. Even if you think you're perfectly fit, you're physician should be consulted before you proceed. Keep in mind that there are certain physical conditions that may restrict the type and intensity of exercise you should attempt.

BEFORE YOU START - Know the status of your body system

The following are several different aspects of your health you should consider and discuss with your physician before embarking upon an exercise

program.

How's Your Heart?

Everyone over the age of forty, and diabetics over the age of thirty, should



be tested for significant coronary artery disease before beginning a new exercise program. An abnormal test may not necessarily rule out exercise, but it may suggest restraint or close supervision while exercising.

Have Your Blood Pressure Checked.

Although long-term exercise helps to lower resting blood pressure, your



blood pressure can rise while you are exercising. So consult your doctor first.

Have Your Eyes Examined.

Before beginning any exercise program, you should have your eyes checked by a physician, ophthalmologist or retinologist experienced in evaluating diabetic renal disease (retinopathy). Certain types of retinopathy are characterized by the presence of very fragile blood vessels growing from the

retina. If your physician or ophthalmologist identifies such vessels, you'll probably be warned to avoid exercises requiring exertion or strong force or sudden changes of motion. Bicycling and surface swimming are usually acceptable alternatives, but first check with your physician.



Do You Have Fainting Spells?

A form of nerve damage called vascular autonomic neuropathy (caused by chronically high blood sugars) can lead to light-headedness and even fainting during certain types of extreme exertion.

If you take blood-sugar lowering medications.

If you take insulin or oral hypoglycemic agents, it is wise to make sure your blood sugars are stabilized before you begin a strenuous exercise program.

Frequent Presence of Protein In The Urine (Proteinuria).

Elevated levels of urinary protein are usually exacerbated by strenuous exercise. This in turn can accelerate the kidney damage that you may already have.

WHY DON'T PEOPLE LIKE TO EXERCISE?

1.) It's Not Fun "For Some"

It's not fun doing things alone. Then perhaps, think of the buddy system. Call a favorite friend that might like to join you. Maybe he was just waiting or looking also for company. Some think they have to enroll in a gym or to join a group to be physically active - no

need!

2.) There Is Just No Time!

But when we want to do things we like, there is always time for it. What about brainstorming or informal meeting with a friend. Just "walk while you talk". Before you know it, 20 minutes has just gone by.

3.) I Don't Have The Proper Outfit

The first thing is check your footwear. Maybe you might just have kept a good rubber shoes somewhere. If there is none - treat yourself to one. There are so many good sturdy walking shoes.

4.) Oh! It's Raining Hard and It's Pouring!

More excuses! As long as it's not stormy, put your hooded jacket and brave the drops. It's refreshing and invigorating. Then comes the great warm shower after that cool walk and it's totally therapeutic!

ONGOING CONCERNS FOR EXERCISING DIABETICS

The following is a health list to review of aspects of health you should consider on an ongoing basis as you pursue your exercise program.

Recent Surgery. It usually warrants restraint or abstinence until you receive clearance from your surgeon.

Blood sugar changes. Even after blood sugars are reasonably well controlled, illness, dehydration, and even transient blood sugar values over 200 mg/dl are reasons for you to refrain from exercise.

Blood sugars below target values. If you take blood-sugar-lowering medications, do not exercise if blood sugar is below your target value.

Possible foot injury. If you've had diabetes for a number of years, there is a good chance that your feet are especially susceptible to injury while exercising. Your physician or podiatrist should be consulted before you start any new exercise, as some restrictions may be necessary. ○

The "why's and ways" of controlling postmeal glucose

Elaine C. Cunanán, MD
UST Hospital

What is "postprandial hyperglycemia"?

In people who don't have diabetes, the pancreas secretes a small amount of insulin all the time. The pancreas increases its insulin secretion as blood sugar rises after meals. Because of this meal-related rise in insulin, a non-diabetic person's postprandial ("post"-after, "prandial"-eating) blood sugar, taken two hours after eating, does not exceed 140 mg/dL.

In people with Type 2 diabetes, pancreatic insulin secretion in response to a meal is no longer adequate leading to postprandial hyperglycemia. Postprandial hyperglycemia is specifically defined as a plasma sugar level taken two hours after ingestion of food that is more than 140 mg/dL.

Is postprandial hyperglycemia harmful?

Post-meal blood glucose is a key contributor to average blood glucose level as measured by glycated haemoglobin (HbA1c). The HbA1c test is generally performed in a laboratory or clinic, and shows a person's average blood glucose level over a 2- to 3-month period. As such, it is a good marker for the specific damage that can lead to diabetes complications. Since HbA1c is derived from both fasting and post-meal levels, it is important to control both 'types' of glucose.

Blood sugar spikes after meals have also been shown to negatively influence mental concentration, mood, and physical performance. Moreover, some studies have suggested that

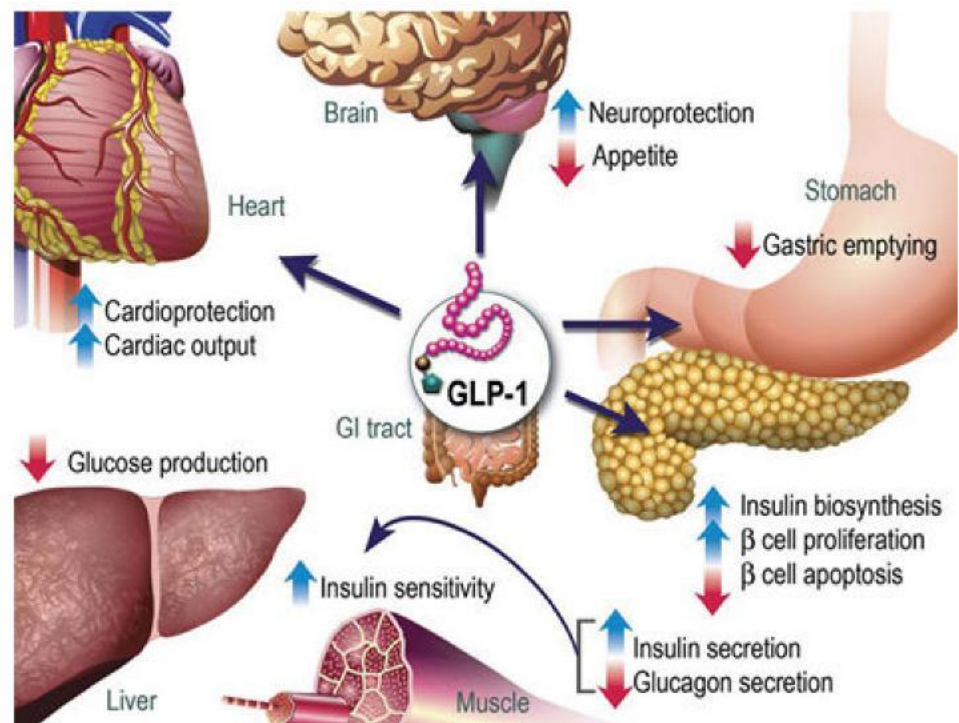


photo credit from www.diabetesindia.com

A. Type 2 Diabetes

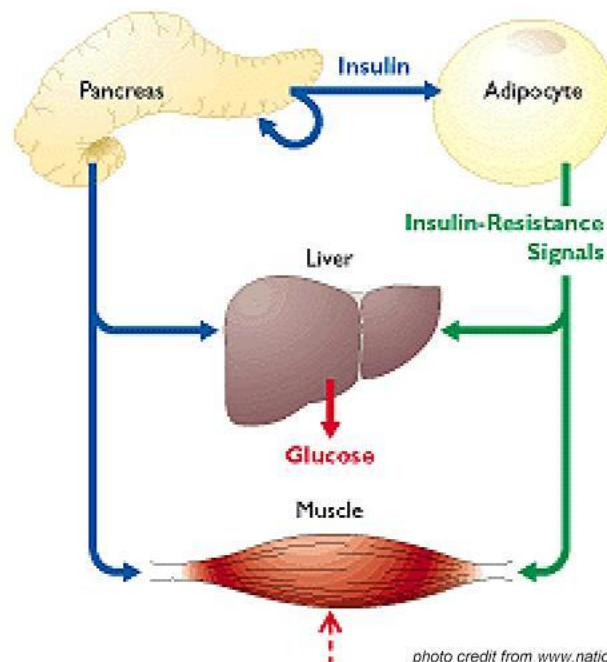


photo credit from www.nationalreviewofmedicine.com



postprandial hyperglycemia is directly related to cardiovascular disease. The International Diabetes Federation guideline recommends that people with diabetes try to keep post-meal blood glucose below 140 mg/dl (7.8 mmol/l) during the 2 hours following a meal.

What can I do to control it?

Eating a healthy, balanced diet which includes vegetables, fruits, and whole-grain foods can help to reduce post-meal blood glucose levels. Physical activity and weight control improve the way insulin works and lowers blood glucose, especially after meals.

There are several drugs that are specifically designed to address postprandial hyperglycemia. These are as follows:

Alpha-glucosidase inhibitors

Alpha-glucosidase inhibitors (AGIs) block the action of an enzyme in the small intestine that normally breaks down carbohydrate into glucose. Therefore, glucose enters the bloodstream more slowly, giving the

pancreas extra time to secrete enough insulin to handle it. Acarbose and voglibose are commercially available AGIs.

Glinides

Repaglinide stimulates a rapid but short-lived release of insulin from the pancreas that lasts one to two hours. When taken at mealtimes, it reduces postmeal blood glucose excursion.

Glucagon-like peptide-1 (GLP-1) analogs

GLP-1 is a hormone secreted from the gut in response to food intake. It lowers glucose through its ability to stimulate insulin secretion. In people with type 2 diabetes, secretion of GLP-1 is diminished. Exenatide and liraglutide are injectable drugs that act like GLP-1 leading to reduction of postmeal hyperglycemia in diabetics.

Dipeptidyl peptidase-4 (DPP-4) inhibitors

DPP-4 inhibitors are tablets that work by inhibiting the DPP-4 enzyme that degrades GLP-1, thereby extending the GLP-1 effect. Currently available DPP-

IV inhibitors are saxagliptin, sitagliptin and vildagliptin.

Insulins

Regular insulin and rapid-acting insulin analogues (eg aspart, glulisine, lispro) were developed to mimic the normal physiologic insulin response to meals. These insulins have a rapid onset and a short duration of action.

The best advice is to talk to your doctor and see whether he or she suggests postprandial testing in your particular case. 

Reference:

Ceriello A, Colagiuri S. Guideline for the management of post-meal blood glucose. *Diabetes Voice*. September 2007. Volume 52.

Diabetes Philippines Goes to Baguio City

Dwight C. Black, MD
Diabetes Philippines Baguio-Benguet Chapter

The 41st diabetes workshop was held at the Baguio Country Club, Baguio City last April 1, 2011 participated by 57 physicians from the city and nearby towns.

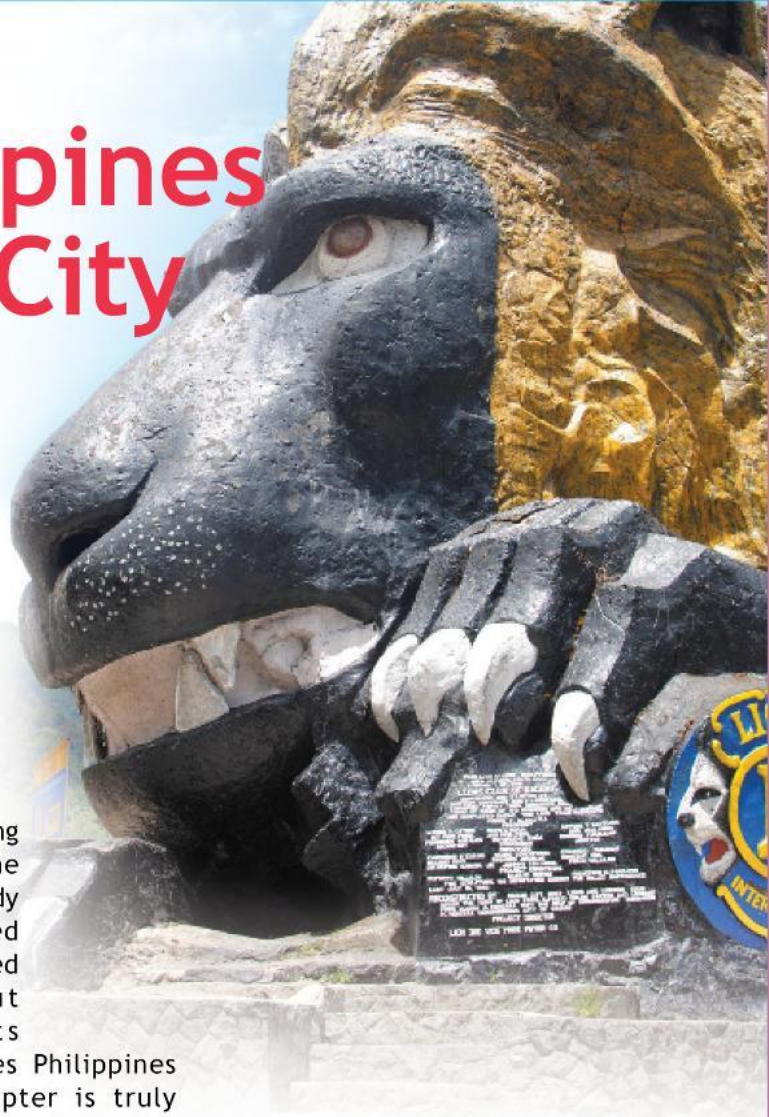
The excellent faculty composed of the officers of Diabetes Philippines delivered lectures of the basics of diabetes diagnosis, management, complications and how to prevent them. Updates on diabetes treatment was also highlighted during the event. The 6th Diabetes Forum followed after the workshop. This activity was structured for allied medical professionals such as nurses and dietitians. There were 134 enthusiastic attendees who listened to topics such as: Diagnosis and Classification of Diabetes Mellitus, Blood Glucose Monitoring, Insulin Therapy, Lifestyle and Nutritional Management and Strategies to Prevent Complications of Diabetes. The wet clinic demonstrated the techniques on insulin administration, capillary blood glucose monitoring as well as using the newest insulin delivery devices.

The event will not be complete without having the Lay Lecture Fora which was held on the second day. There was a total of 53 lay attendees. The audience was awed by the prolific speaker Ms. Sani Rose Orbeta, who delivered parts of her lecture in the local dialect-Ilocano. It was truly an enlightening lecture to our lay listeners.

Of course, it's not all work for the energetic officers and staff of Diabetes Philippines. Everyone had a chance to enjoy the cool Baguio breeze which was a welcome respite from the warm

climate in the lowlands. The group had a good fill of fresh Baguio vegetables, licked the irresistible Good Shepherd Ube and brought home a lot of raisin bread.

It was indeed a fulfilling experience for all the participants. Everybody went home equipped with new and updated knowledge about diabetes and its treatment. Diabetes Philippines Baguio-Benguet Chapter is truly grateful for being chosen as the venue for this year's workshop and diabetes forum. ○





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friends. Join us
celebrate!*

DIABETES FAIR

*"A day of increasing knowledge about
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format."*

FREE REGISTRATION!!! (For updated lay members, just inform the secretariat on or before November 7, 2011)

For more details, please contact:

Diabetes Philippines Secretariat

Unit 25, Facilities Centre, #548 Shaw Blvd., Mandaluyong City

Tel. Nos.: (632) 532-1278 / 534-9559

Email: diabetesphilippines@pltdsl.net

Website: www.diabetesphil.org

REGISTRATION DETAILS

LAY MEMBER	FREE (present your 2011 DP-ID)
NON-MEMBER	Php. 400.00

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discriminate

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International Diabetes Federation

Iris Thiele C. Isip-Tan, MD
Philippine General Hospital

27 *DiabetesWatch* May - August 2011

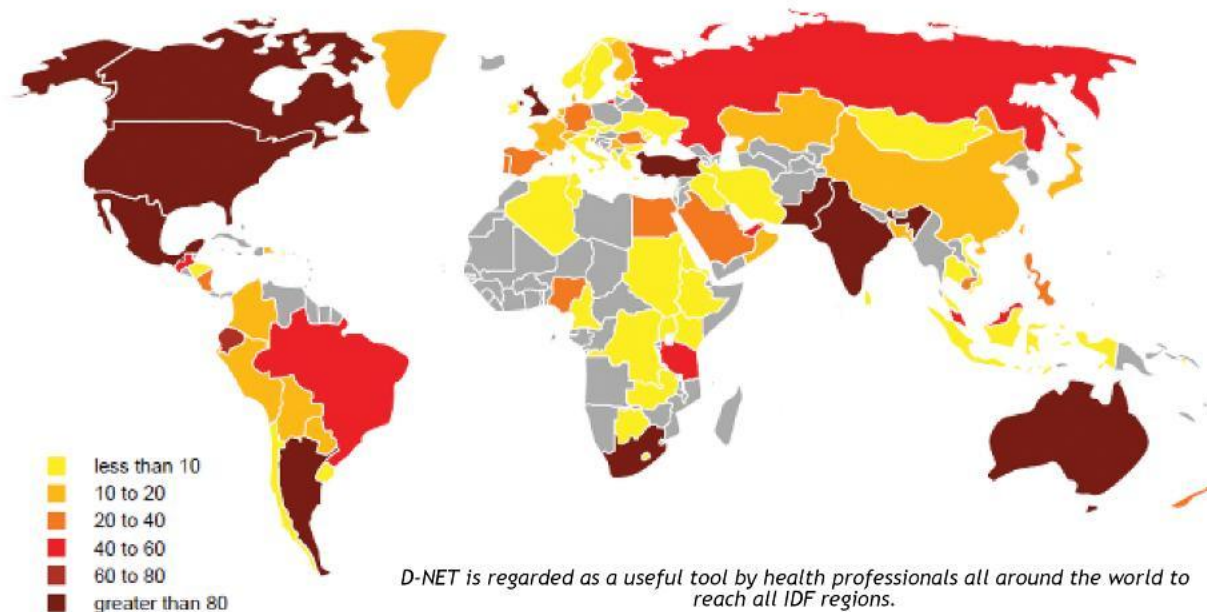


With social networking sites like Facebook (and the upcoming Google+) allowing collaboration between "friends," it's no wonder that the idea of a diabetes education network for health professionals was born at the 2009 IDF World Congress in Montreal! Join in the conversations and listen to stories from around the world at <http://d-net.idf.org>. Then will you realize that the challenges each one of us face in the fight against diabetes may not all be that different after all.

Signing up is easy and it's free. You can choose to join either the English or Spanish-speaking group. Stay abreast of the latest news from the IDF and never miss important events. Get a chance to ask an expert and join a global discussion of selected topics every two weeks. For example, Nutrition Counseling: Roadblocks and Triumphs is scheduled from June 27 to July 11. Past discussions are archived on the website for reference.

The website allows easy access to current diabetes facts and figures. A library of IDF publications is also available. In the video archive, one can get to meet colleagues in the IDF Centers of Education around the planet. On December 4, there will be a D-NET workshop at the World Diabetes Congress in Dubai. This will provide a unique face-to-face opportunity for colleagues who have been chatting online to meet up.

If you'd like to share your experiences in the field of diabetes and would like to learn from others, this is for you! Sign up at <http://d-net.idf.org>. 



D-NET is regarded as a useful tool by health professionals all around the world to reach all IDF regions.

Let's advance diabetes education together:
www.idf.org/d-net

KITCHEN CORNER

Just A Spoonful of
Vinegar Makes Blood
Glucose Go Down...

Ma. Imelda Q. Cardino, MSFN
Diabetes Philippines

Vinegar gives our favourite dishes a distinct flavour: "adobo", "paksiw", "dinuguan", "kilawin", "estofado", "achara" and others. Aside from being a common ingredient in cooking, vinegar has many household uses, too, as: bleach in laundry; bath for dogs to remove "doggy odor" and add-on to their drink for ticks prevention; general household cleansing agent (on floors, on glass, on brass and stainless steel wares, etc); a lukewarm sponge bath to break a fever; simple remedy for acne and minor skin irritation; cough, cold and stuffy nose relief (in steam inhalation); and a lot more. Even the Department of Health was reported to use 3-5% dilute vinegar swabs to screen for cervical cancer in May, 2011. Most vinegars contain thiamine, riboflavin, potassium, calcium, iron, magnesium, phosphorus and sodium so it promotes good nutrition.

It appears that vinegar has endless uses not only in culinary but also in health and beauty. But what is it? It derived its name from an old French word *vin aigre* that means "sour wine". Thus, the American Vinegar Institute defines it as a sour wine that can be made (fermented) from any fruit or material containing sugar. As it can be made from anything that contains sugar, there are numerous different types of vinegar:



MALT VINEGAR is

made by malting barley, causing the starch in the grain to turn to maltose. Then an ale is brewed from the maltose and allowed to turn into vinegar, which is then aged. It is typically light brown in color. Acetic acid content is 5%.

WINE VINEGAR is made from red or white wine, and is the most commonly used vinegar in Mediterranean countries and Central Europe. It is matured in wood for up to two years, and exhibit a complex, mellow flavor. More expensive wine vinegars are made from individual varieties of wine, such as Champagne, sherry (illustrated), or pinot grigio. White wine acetic acid content is 5-7%; red wine is 4%.



APPLE CIDER VINEGAR, simply cider vinegar or ACV, is made from cider or apple must and has a brownish-yellow color. It often is sold unfiltered and unpasteurized with the vinegar mother present. Its health and beauty benefits and possible weight-loss properties are well-known. ACV is believed to be the most versatile of all the different types, thus is considered the **KING OF VINEGARS**. Acetic acid content is 5%.



FRUIT VINEGARS

are made from fruit wines, usually without any additional flavouring, such as the Persimmon vinegar ("gam sikcho") from Korea pictured here. Common flavors of fruit vinegar include apple, black currant, raspberry, quince, and tomato. Typically, the flavors of the original fruits remain in the final product. Acetic acid content is 5-6%.



BALSAMIC VINEGAR is an aromatic, aged type of vinegar traditionally crafted in the Modena and Reggio Emilia provinces of Italy from the concentrated juice, or must, of white grapes (typically of the Trebbiano variety). It is very dark brown in color, and its flavor is rich, sweet, and complex, with the finest grades being the product of years of aging in a successive number of casks made of various types of wood (including oak, mulberry, chestnut, cherry, juniper, ash, and acacia). Acetic acid content is 6%.



PALM, CANE, COCONUT

PALM VINEGAR, made from the fermented sap from flower clusters of the nipa palm (also called attap palm),



content is 4%.

CANE VINEGAR, made from sugar cane juice, is most popular in the Philippines, in particular, the Ilocos Region of the northern part (where it is called *sukang iloko*), although it also is produced in France and the United States. It ranges from dark yellow to golden brown in color, and has a mellow flavor, similar in some respects, to rice vinegar, though with a somewhat "fresher" taste. Contrary to expectation, containing no residual sugar, it is not sweeter than other vinegars. In the Philippines, it often is labeled as *sukang maasim*, although this is simply a generic term meaning "sour vinegar". Cane vinegars from Ilocos also varies in two different types: *basi* (sweet) and *suka* (sour). The sweet vinegar is used as a wine in Ilokanos, while the other type of vinegar is used as a seasoning and preservative. Acetic acid content is 4-6%.



COCONUT VINEGAR, made from fermented coconut water, is used extensively in Southeast Asian cuisine (particularly in the Philippines and Sri Lanka, major producers, where it is called *suka ng niyog* or *vinakiri*), as well as in some cuisines of India. A cloudy white liquid, it has a particularly sharp, acidic taste with a slightly yeasty note.



is used most often in the Philippines, where it is produced, and where it is called *sukang paombong*. Acetic acid

content is 4%.

RICE: WHITE, RED, BLACK

RICE VINEGAR is most popular in the cuisines of East and Southeast Asia, is available in "white" (light yellow), red, and black varieties. The Japanese prefer a light rice vinegar for the preparation of sushi rice and salad



dressings. Red rice vinegar traditionally is colored with red yeast rice. Black rice vinegar, from black glutinous rice, is most popular in China, and also widely

used in other East Asian countries. Acetic acid content is 4-5%.

GERMAN BEER VINEGAR



Vinegar made from BEER is produced in the United Kingdom, Germany, Austria, and the Netherlands. Although its flavor depends on the particular type of beer from which it is made, it is often described as having a malty taste. That produced in Bavaria is a light golden color with a very sharp and not-overly-complex flavor. Acetic acid content is 7%.

HONEY VINEGAR



HONEY VINEGAR is rare, although commercially available honey vinegars are produced in Italy, France, Romania and Spain.

CHINESE BLACK VINEGAR is an aged product made from rice, wheat, millet, sorghum, or a combination thereof.



It has an inky black color and a complex, malty flavor. There is no fixed recipe, so some Chinese black vinegars may contain added sugar, spices, or caramel color. The most popular variety, *Zhenjiang vinegar* (镇江香醋), originated in the city of Zhenjiang, in the eastern coastal province of Jiangsu, China and also is produced in Tianjin and Hong Kong.

JAPANESE KUROZU

A somewhat lighter form of black vinegar, made from rice, also is produced in Japan, where it is called *kurozu*. Since 2004, it has been marketed as a healthful drink; its



manufacturers claim it contains high concentrations of amino acids. Recent research on kurozu has revealed its anticancer properties in vivo

on rats and in vitro on human cancer cells.

FLAVORED VINEGARS

KOMBUCHA VINEGAR is made from



kombucha, a symbiotic culture of yeast and bacteria. The bacteria produce a complex array of nutrients and populate the vinegar with bacteria which some claim promotes a healthy digestive tract, although not confirmed by scientific studies. Kombucha vinegar primarily is used to make a vinaigrette, and is flavored by adding strawberries, blackberries, mint, or blueberries at the beginning of fermentation.

SINAMAK



A local variation of cane vinegar (sukang maasim) is called sinamak which is simply a spiced version that mixes the cane vinegar with siling labuyo, onions and garlic.

DISTILLED VINEGAR

Any type of vinegar may be distilled to produce a colorless solution of about 5% to 8% acetic acid in water. This is variously known as distilled spirit or

"virgin" vinegar, or white vinegar, and is used for medicinal, laboratory and cleaning purposes, as well as in cooking, baking, meat preservation, and pickling. The most common starting material, because of its low cost, is malt vinegar.



SPIRIT VINEGAR

The term 'spirit vinegar' is sometimes reserved for the stronger variety (5% to 20% acetic acid) made from sugar cane or from chemically produced acetic acid.

Having some information on the different types of vinegar, it is easier to understand why apple cider is the choice in most of the trials where the effect of vinegar on postprandial blood glucose was studied. Apple cider is cheap, easy to find, considered the most versatile and believed to provide the most health benefits.



The antiglycemic effect of vinegar was first reported by Ebihara and Nakajima in 1988. The study was in rats, the blood glucose response to a 10% corn starch load was significantly reduced when coadministered with a 2% acetic acid solution. In healthy human subjects, although the glucose response curve was not significantly altered, the area under the insulin response curve following the ingestion of 50 g sucrose was reduced 20% when coadministered with 60 ml strawberry vinegar. Several years later, a number of studies followed.

In 1995, at the University of Milan, Italy 5 (five) healthy subjects were fed salad with vinegar dressing, resulting in a 31% depression of their postprandial blood glucose. In Sweden, a similar finding was found in 1998 in 10 (ten) healthy subjects. It was in 2003 that a bigger number of subjects was seen. This was in Japan where 38 healthy females and 20 healthy males participated. All subjects were fed white rice meals with added beans, dairy products and vinegar. The glycemic index of the meal decreased by 20-40%. What was interesting was that effect was the same whether the vinegar was taken before, during or directly after eating the rice meal. Dr. Nobumasa Ogawa of Tokyo University discovered that the acetic acid inhibits the activity several carbohydrate-digesting enzymes such that these starches temporarily pass through the intestine without being digested. As reported in *Diabetes Care* (Jan 2004), people with Type 2 diabetes (10 subjects) and with insulin resistance (11 subjects) 8 healthy subjects were recruited for a study by Dr. Carol S. Johnston, RD, (Department of Nutrition, Arizona State University) and colleagues. Fasting blood sugar of all subjects were taken then randomly assigned to consume:

- 20 gm apple cider vinegar, 40 gm water, 1 tsp saccharin OR
- placebo drink.

After a 2-minute delay, the subjects consumed a test meal of white bagel, butter, orange juice which provided 87 gm of carbohydrate. A cross-over trial was done 1 week after. The blood glucose of the subjects were tested at several points (zero, 30 minutes after, etc). Results showed that vinegar significantly improved postprandial insulin sensitivity in insulin resistant subjects and persons with type 2 diabetes. Acetic acid was shown to suppress disaccharidase activity and raised the glucose-6-phosphate concentration in the skeletal muscle.



Photo taken by Dondi - Vinegar fermentation

A similar study among 10 (ten) type 1 subjects by Panayota Mitrou et al (*Diabetes Care*, Feb 2010) Mitrou et al said that vinegar delayed gastric emptying and enhanced glycogen repletion in the liver and muscle. Mitrou et al concluded that 2 tablespoons of vinegar could easily be used as a complementary food to reduce hyperglycemia.

Dr. Carol Johnston did a other studies using apple cider among persons with diabetes, getting the same results. One study she did was to administer vinegar at bedtime (*Diabetes Care*, Nov 2007) to type 2 adults (4 males and 7 females). She concluded that vinegar at bedtime may favourably impact waking glucose concentration in persons with type 2 diabetes due to:

- reduced starch digestion
- and/or delayed gastric emptying.

There was one study (Dr. Elin Ostman of Lund University, Sweden) where the bread served to subjects were soaked in vinegar instead of being served as a drink. In addition to getting a lower postprandial glucose reading, the

participants also reported feeling full longer when vinegar was added to the diet.

The study of Liatis et al (*Eur J Clin Nutr*, July 2010) involving 16 type 2 persons with diabetes showed a different result. What they did in this Athens University Medical School research was to feed one group with high glycemic index meal (mashed potato and low fat milk) and the other with low glycemic index meal (whole grain bread, lettuce and low fat cheese). Blood glucose tests showed vinegar affected only the postprandial results in the high glycemic index group. Hence the authors concluded that vinegar supplementation does not have a significant effect if the meal taken is low in glycemic index.

Drinking or taking vinegar in its undiluted form may possibly be harsh on the throat, even burning. There has been a report that apple cider vinegar tablets caused chemical burn of the throat. However, some doubt as to whether the acid of the tablet is indeed from apple cider.

While it is true that there are no long

term studies on vinegar, the number of subjects have been few and some negative reports, adding vinegar to food may not be so daunting. The Filipino cuisine is rich in recipes requiring the use of vinegar. Vinegar as salad dressing is a healthier choice than the mayonnaise-based dressings. Vinegar may be used on the table as dips for fried viands instead of salty condiments. Make it more flavourful by the addition of spices and herbs. Therefore, the suggested intake of 2 tablespoons apple cider vinegar daily may easily be consumed. It would help to monitor the blood glucose after supplementing the meal with vinegar to see if the addition improves the postprandial reading. If it does improve the glucose result, hurray! If it does not, at least you have savoured a flavourful meal. ○

P.S. You might want to try this ONE-DISH MEAL RECIPE. To reduce the calorie intake to approximately 200 calories, take HALF SERVING

Sesame Chicken and Noodles

<http://shine.yahoo.com/channel/food/recipes/sesame-chicken-and-noodles-537116/>



Chicken, delicately seasoned, served on top of prepared udon noodles or whole wheat spaghetti.

Nutrition Facts * Calories 391, * Total Fat (g) 11, * Saturated Fat (g) 2, * Cholesterol (mg) 37, * Sodium (mg) 718, * Carbohydrate (g) 51, * Fiber (g) 4, * Protein (g) 21, * Vitamin A (DV%) 0, * Vitamin C (DV%) 195, * Calcium (DV%) 4, * Iron (DV%) 16, * Percent Daily Values are based on a 2,000 calorie diet

Ingredients

- 1/3 cup apple cider vinegar
- 1/3 cup thinly sliced green onions
- 2 Tbsp. honey (may substitute sucralose or acesulfame-K if desired)
- 1 Tbsp. reduced-sodium soy sauce

- 1 Tbsp. grated fresh ginger
- 2 tsp. Asian garlic-chili sauce
- 2 6-oz. pkg. refrigerated grilled chicken breast strips
- 12 oz. dried udon noodles or whole-wheat spaghetti
- 3 Tbsp. toasted sesame oil
- 2 medium yellow, red and/or orange sweet peppers, cut in bite-size strips
- Fresh cilantro

Directions

1. In medium bowl stir together vinegar, green onions, honey, soy sauce, ginger, and garlic-chili sauce. Add chicken; stir to coat. Set aside to allow flavors to meld.
2. Meanwhile, in large saucepan cook noodles in boiling water about 8

minutes until just tender. Drain noodles well and return to saucepan. Drizzle with oil and toss to coat. Add chicken mixture and toss to combine.

3. Transfer to bowls. Top each with pepper strips and cilantro. Makes 6 servings.

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PLAS-PSH Lay Forum

February 5, 2011 (Crowne Plaza Galleria, Manila)

- Held last February 5, 2011 at Crowne Plaza Galleria, this is the kick-off activity for the joint annual convention of Philippine Lipid and Atherosclerosis Society (PLAS) and Philippine Society of Hypertension. Diabetes Philippines IEC materials for lay delegates had been given away during this half day activity.



Philippine Heart Association Heart Month 2011

February 6, 2011 (Quezon City Circle, Quezon City)

- As part of the celebration of the Heart Month with the theme "I Work with Heart" PHA holds one of its major activities, which is the Heart Month 2011 Heart Fair, last Feb. 6, 2011, at the Basketball Covered Court in Quezon Memorial Circle.



Events include risk factor screenings such as consultation, sugar/cholesterol determination, blood pressure (BP) and electro-cardiogram (ECG) taking; Healthy Lifestyle Passport Assessment II, cardio-pulmonary resuscitation demonstration; forum on cardiac rehabilitation and healthy cooking and aerobics competition. The Diabetes Philippines showcased its Information, Communication and Education materials during the said fair.





**Philippine Society of Gastroenterology, Philippine Society of Digestive Endoscopy and Hepatology Society of the Philippines
Philippine Digestive Health Week**

March 6, 2011 (MegaTrade Hall 3, SM Megamall Bldg., Mandaluyong City)

- This activity was jointly organized by the Philippine Society of Gastroenterology, the Philippine Society of Digestive Endoscopy and the Hepatology Society of the Philippines, in observance of Philippine Digestive Health Week. At least 32 exhibitors, including the Diabetes Philippines supported the activity, providing information thru our IEC materials. The activity's theme was "*Kung Di Ukol, Di Bubukol, Magtanong Kay Dok.*" Among the highlights of the day's event was the ceremonial signing of a Memorandum of Agreement between PSG and Pfizer Consumer Division for the implementation of continued information dissemination and awareness campaigns on digestive system health conditions.



MOA Signing of Corporate Membership of AstraZeneca

May 16, 2011 (Annabel's Restaurant, Tomas Morato, Quezon City)



- Held last May 24, 2011 at Annabel's Restaurant, in Quezon City, representatives from Diabetes Philippines headed by Dr. Susan Yu-Gan, president of Diabetes Philippines and Dr. Agnes T. Cruz, Treasurer of Diabetes



Philippines took part during the signing of Memorandum of Agreement between Diabetes Philippines and AstraZeneca for the corporate membership of AstraZeneca. Representing AstraZeneca Pharmaceuticals are Amal S. Kelshikar, Marketing Company President and Ms. Lotis Ramin, Senior Product Manager.

PSH National Hypertension Awareness Month 2011

May 21, 2011 (Quezon City Circle, Quezon City)



1st Joint APSA-VL-PLAS-PSVM Atherosclerotic Peripheral Arterial Disease Forum (PAD) Forum

May 24, 2011 (Crowne Plaza Galleria Manila, Quezon City)

- The Asia Pacific Society of Atherosclerosis and Vascular Disease in cooperation with Philippine Lipid and Atherosclerosis Society, Philippine Society of Vascular Disease and the Philippine Heart Association, Council of Stroke and Peripheral Vascular Disease holds its 1st Joint Atherosclerotic Peripheral Arterial Disease titled "Out on a Limb" last May 24, 2011 at Crowne Plaza Galleria, Manila. Conference speakers from Australia, Philippines, Thailand, Singapore and Malaysia discussed topics relevant to the global burden of PAD; incidence of PAD in Asia Pacific Region, early recognition and diagnosis of PAD and conventional and modern innovative approach in management of PAD. Diabetes Philippines took part in this event by giving away IEC flyers and announcement for upcoming activities.



Philippine College of Physicians 41st Annual Convention

May 1-4, 2011 (SMX Convention Center, Pasay City)



- The Philippine Society of Hypertension (PSH) organized this activity to highlight the celebration of National Hypertension Awareness Month with the theme "High Blood Ka Na Ba? Alamin ang BP, Bago Magsisi" which was held last May 21, 2011 at the New Covered Basketball Court, Quezon City Memorial Circle, Quezon City. The highlight of this event is the formal launching of the Hypertension Alliance in the Philippines (HAP) thru tarpaulin signing of the members of the alliance. Dr. Richard Elwyn V. Fernando, Vice-President of Diabetes Philippines represented our association during this momentous event. This half day activity includes aerobics and calisthenics exercise, short lectures on hypertension and healthy lifestyle and free BP measurement, weight, height and BMI check, random blood sugar test, cholesterol check and ECG check for all the participants of this event.



- Dr. Susan Yu-Gan, president of Diabetes Philippines attended the opening ceremony and convocation and has chosen to be one of the distinguished speakers of the 41st Annual Convention of Philippine College of Physicians which was held last May 1-4, 2011 at SMX Convention Center, Pasay City. The theme for this year's convention is "Views and Cues: Navigating the Maze in Internal Medicine". Advocacy flyers and announcement for our upcoming activities were given to the attendees of this activity.

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Reference: The ONTARGET Investigators. Telmisartan, Ramipril or Both in Patients at High Risk for Vascular Events.
N Engl J Med 2008; 358:1547-59

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BLOOD SUGAR MONITORING: HOW TO GET IT RIGHT

Joy C. Fontanilla, MD
Asian Hospital & Medical Center

Blood glucose or blood sugar monitoring is a vital component in diabetes care. Self-monitoring of blood glucose (SMBG) has been shown to improve blood sugar control, as well as health outcomes in people with diabetes.

SMBG aids patients in making day-to-day choices regarding their meals, physical activity, insulin and other medication doses. It also helps them better recognize hypoglycemia (low blood sugar) and severe hyperglycemia (high blood sugar), as well as educate them on the effects of lifestyle, illness and drugs on blood sugar levels.

People with diabetes need to know the proper techniques in SMBG and learn the potential sources of error in measurement of blood sugar.

DOING THE TEST

To use your glucose meter correctly, read the instruction manual, package insert or consult your healthcare provider.

Never share fingerstick lancing devices or blood sugar monitoring equipment. Sharing these could result in transmission of infections, such as hepatitis B, C or HIV. If blood sugar meters must be shared, make sure to clean and disinfect after each use as per manufacturer's instructions. If no such instructions are provided, then the device should not be shared. Nurses or caregivers must change gloves and perform hand hygiene between fingerstick procedures to avoid infection spread.

- Wash hands with soap and warm water. Alcohol may also be used but can result in excessive dryness and cracks in the skin. Dry hands thoroughly.
- Insert a fresh lancet in the lancing

device. Lancets used more than once get blunted, and can cause more pain and injury to the skin.

- Prepare the blood glucose meter and test strip (as per manufacturer's instructions).
- Using the lancing device, get a small drop of blood from the side of the fingertip or alternate site (like the skin of the forearm) (picture 1). Fingertip sides and alternate sites are often less painful than the middle of the fingertip which contains a lot more nerve endings. However, results from alternate sites are not as accurate as fingertip samples when the blood sugar is changing rapidly (picture 2). When suspecting hypoglycemia, fingertip samples are therefore preferred.

If you have a hard time getting a good blood sample from the fingertip, try rinsing your fingers with warm water, shaking the hand below the waist, or squeezing ("milking") the fingertip before pricking.

- Apply the blood drop to the test strip in the glucose meter. Results will be displayed after several seconds.
- Dispose of the used lancet in a puncture-resistant container.

FREQUENCY OF TESTING

SMBG is very important for all types of diabetes patients. How often you should test is based on factors such as mode of treatment (diet versus oral medication versus insulin), level of hemoglobin A1c (HbA1C), and treatment goals. People with type 1 diabetes, diabetes in pregnancy, multiple daily insulin injections or poor blood sugar control generally need to check several times daily. Healthcare providers can help determine how frequently to test.

INTERPRETING RESULTS

Blood sugar measurements show if

treatment goals are being met. However, blood sugar can be affected by activity levels, food intake, and medications.

Record blood sugar results along with the time and date, medication dose, as well as foods eaten, exercise, and presence of illness or stress. Review your blood sugar records regularly with your healthcare provider so appropriate treatment adjustments can be made. Check for ketones in the blood or urine if the blood sugar level is above 240 mg/dL (13.3 mmol/L), during episodes of illness or stress, or if symptoms of ketoacidosis are present, such as nausea, vomiting, and abdominal pain. Ketones are the acids formed when the body lacks insulin to get glucose into cells, causing the breakdown of fat instead for energy. High ketone levels can lead to ketoacidosis and diabetic coma. Call your healthcare provider immediately or go to the emergency room if you have ketones or symptoms of ketoacidosis.

ACCURACY OF RESULTS

The accuracy of SMBG results can be affected by several factors such as those related to the glucose meter and strip, the patient, the environment, and drug interference.

Glucose monitor and strip factors.

Some SMBG devices require patients to input a special code for calibration. A common source of error is miscoding which can cause insulin and other medication dose errors, so patients need to make sure their strips are properly coded before testing. Fortunately, some newer meters can do automatic coding,

Differences in strip design, blood sample and well size, as well as meter cleanliness can affect results. Some

meters allow for these variances, while others don't.

Glucose test strips have a limited lifespan of about 2 years if stored properly. High temperature, humidity and leaving the strip container open shorten strip life. Moreover, the strips usually expire 3 months after the vial has been opened. Thus, it is important to note the date the vial was opened not just the expiration date stamped on it, which usually refers to the strip lifetime when the bottle remains unopened.

Patient factors. Patients need to be adequately trained to use the meter correctly. Improper technique such as insufficient quality and size of the blood sample can affect the results. When the fingertip is squeezed only after the fingerprick, more of the

interstitial fluid (or liquid found between cells) rather than blood will be measured.

Cleanliness of the finger or body part where the blood sample is taken from can also influence readings. Forgetting to wash hands after eating candy, cookies, fruits, etc. can falsely raise test values. Some lotions may also lower results slightly.

Alternate site testing normally has a lag of 15 to 30 minutes which can reach up to 1 hour when the arm is cooled. Fingertip samples are thus preferred when suspecting hypoglycemia or when rapid blood sugar fluctuations are expected (e.g., in response to eating, insulin or exercise).

Medical conditions such as anemia and kidney failure can also alter test values.

Environmental factors. Room temperature, altitude and humidity can all influence test readings.

Pharmacologic factors. Certain drugs and other substances given to a patient can also alter test values. Some meters are affected by these interferences, while others are not. For example, test strips that use the enzymes glucose dehydrogenase (GDH), pyrroloquinolinequinone (PQQ), or glucose dye oxidoreductase (GO) can mistake icodextrin, maltose, galactose and xylose sugars for glucose and lead to falsely high blood sugar levels. These interfering sugars may be found in certain immunoglobulin products, foods, herbs, nutritional supplements and peritoneal dialysis solutions.

The table below summarizes the effects of various factors on SMBG readings.

Variable	Effect on reading
Hematocrit (Hct)	
Anemia (low Hct)	Raises (GO & GDH)
Polycythemia (high Hct)	Lowers (GO & GDH)
Oxygen (O ₂) concentration	
Hypoxia (low O ₂ , high altitude)	Raises (GO)
Oxygen therapy	Lowers (GO)
pH (6.8-7.55)	
Low pH	May lower (GO)
High pH	May raise (GO)
Hypothermia (low temperature)	Raises (GO & GDH) or lowers (GDH)
Hypotension (low blood pressure)	Raises (GO & GDH) or lowers (GDH)
Uric acid	Lowers (GO)
Drugs	
Ascorbic acid	Raises (some GDH) and lowers (GO)
Acetaminophen	Variable (GO and GDH)
Dopamine	Variable (GO and GDH)
Icodextrin	Raises (GDH-PQQ only)
Galactose	Raises (GDH-PQQ only)
Xylose	Raises (GDH-PQQ only)
Tolazamide	Variable (GO)
Mannitol	Raises (GO)

*Consult product package inserts for information regarding meter accuracy and interfering substances. GO = glucose oxidase; GDH = glucose dehydrogenase; PQQ = pyrroloquinolinequinone. Table adapted from The Diabetes Education Group ©2010 (www.medscape.com).

Check glucose meter accuracy by occasionally bringing it to the lab when blood work is done. Use your home device to check your blood sugar at the same time that blood is drawn. There should be no more than a 15% difference between the lab and home meter values. A discrepancy may mean a problem with your device, strips, or your monitoring technique.

Practice caution and common sense when interpreting your results. If the test value does not fit with your symptoms, recheck or use a different machine. SMBG devices are least accurate during hypoglycemia and severe hyperglycemia.

CHOOSING A BLOOD GLUCOSE METER

When selecting an SMBG device, the

following factors may need to be considered:

- **Cost** - Some companies offer discounts, rebates, and trade-ins on monitoring equipment. Check the cost and availability of supplies that go along with a meter, including test strips and lancets.
- **Convenience** - Some devices are easier to use than others. Some require only tiny blood samples, which therefore entail less effort and pain to obtain. Meters also vary in size and how quickly they put out the result (some in as little as five seconds). Smaller monitors are more discreet and portable.
- **Accuracy** - Newer meters typically

give more reliable results.

- **Sophistication** - Some meters are fancier. Some have a large memory capacity, or capable of giving 7- to 14-day averages. Some allow you to enter variables (like food, medication or exercise), and come with software programs that allow you to upload data to a computer and plot blood glucose graphs. Meters that can "talk" or have large screens are also available for the vision-impaired.

Take good care of your glucose meter, and use it wisely. SMBG is a very valuable tool in managing diabetes. It may even help save your life some day.

Fingertip testing



Other places to test your blood sugar

Picture 2

Alternate site testing:



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Reference:

1. Kahn S, Haffner S, Heise MA, et al. Glycemic durability of rosiglitazone, metformin, or glyburide monotherapy. *N Engl J Med* 2006;355:2427-443. Efficacy in *N Engl J Med* 2007;356:1357-358.

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Diabetes Philippines Inducts 2011-2012 Officers and Board

Joy C. Fontanilla, MD
Asian Hospital & Medical Center

Diabetes Philippines held the induction ceremonies of its officers and board on January 14, 2011 at the Century Park Hotel in Manila. This is the first time that the officers and board members have taken their oath in public. Esteemed Past President, Dr. Augusto D. Litonjua inducted into office Drs. Susan Yu-Gan (Chairman and President),

Richard Elwyn Fernando (Vice-Chairman and Vice-President), Rima Tan (Secretary), Agnes Cruz (Treasurer) and members of the Board of Directors Dr. Tommy Ty Willing, Dr. Joy Arabelle C. Fontanilla, Dr. Francis Pasaporte, Ms. Sanirose Orbeta, Ms. Ma. Imelda Cardino, Ms. Evangeline Reyes, Mr. Alvin Miranda, Mr. Maxim Legaspi and Ms. Marippee Genato. During the event, Dr. Tommy Ty Willing,

as Immediate Past President, presented the accomplishments of the organization during his terms of office, and Dr. Susan Yu-Gan imparted her plans for the future. The occasion was graced by the Diabetes Philippines past presidents, past officers, partners, friends and other well-wishers. ○



Inducted officers and guests during the induction ceremonies of 2011-2012 Diabetes Philippines Officers and Board of Directors



First row from left: Dr. Augusto D. Litonjua, Dr. Richard Elwyn V. Fernando, Dr. Agnes T. Cruz, Dr. Joy Arabelle Castillo-Fontanilla, Mrs. Sanirose S. Orbeta, Mr. Maxim T. Legaspi
Second row from left: Dr. Dr. Francis I. Pasaporte, Dr. Rima T. Tan, Dr. Susan Yu-Gan, Mrs. Ma. Imelda Q. Cardino, Dr. Tommy S. Ty Willing, Ms. Evangelina P. Reyes, Ms. Aileen Manalang and Mr. Alvin Z. Miranda



Oathtaking of 2011-2012 Diabetes Philippines Officers and Board headed by inducting officer and past president Dr. Augusto D. Litonjua

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✓ *With Low Glycemic Index!*



Diabetics need to maintain their blood glucose at a normal and healthy level to help prevent complications arising from diabetes. Medication, proper diet, and exercise play a major role in lowering blood glucose levels. Additionally, taking a nutritional supplement that has a low glycemic index will likewise help avoid sudden fluctuations.

GLUCERNA SR is a complete and balanced nutrition ideally formulated for diabetics. A great tasting low glycemic and low-calorie oral meal supplement or snack clinically proven to provide better glucose control. Take control. Take Glucerna.

- **Unique Slow-Release (SR)** carbohydrate blend with a low glycemic index designed for slow absorption by the body to minimize after-meal blood glucose response and provide a sustained release of energy
- **High monounsaturated fatty acids (MUFA)** to help lower blood cholesterol and promote a healthier heart
- **Enriched with vitamins and minerals** essential to people with diabetes
- **Nutrient-dense and low-calorie** for better weight management
- **Tummy-friendly formula** with fiber. Gluten and lactose-free.

GLUCERNA SR - a complete and balanced formula for diabetics who want to be in control.

Ask your doctor about diabetes management and GLUCERNA. Call the **DIABETES HOTLINE** and get free nutrition counseling 888-0444 • Email: hcs.ph@abbott.com

Available in all leading supermarkets and drugstores nationwide.

Abbott
A Promise for Life



2011 SCHEDULE OF ACTIVITIES

41st DiabetesWorkshop and 6th Diabetes Forum

Baguio Country Club, Baguio City
April 1-2, 2011 (Friday- Saturday)



42nd DiabetesWorkshop and 7th Diabetes Forum

Iloilo Business Hotel, Iloilo City
July 15-16, 2011 (Friday-Saturday)



43rd DiabetesWorkshop and 8th Diabetes Forum

Asia Blooms Hotel, Resort and Restaurant, Sta. Cruz, Laguna
October 7-8, 2011 (Friday-Saturday)



28th Annual Convention of Diabetes Philippines

7th Course on Diabetes and Vascular Disease
Century Park Hotel, Manila
November 9 - 11, 2011 (Wednesday-Friday)



Gimik Diabetes Year 5 World Diabetes Day Celebration/Lay Annual Convention

Century Park Hotel, Manila
November 12, 2011 (Saturday)



A close-up photograph of a man with light brown hair and blue eyes, looking slightly upwards. He is in the process of shaving his face with a safety razor. His chin, upper lip, and cheeks are covered in a thick, white shaving cream. The razor is held against his right cheek, and a small amount of foam is being displaced. The background is out of focus, showing vertical lines of light and dark, possibly from a window or a shower curtain. The overall tone is soft and intimate.

Hour	Healthy (nmol/L)	Mild (nmol/L)	Severe (nmol/L)
0	0.1	0.1	0.1
4	0.4	0.6	0.8
8	0.6	1.2	1.5
12	0.8	1.6	2.0
16	0.6	1.4	1.8
20	0.4	0.8	1.2
24	0.2	0.4	0.6

- ONCE-DAILY Levemir™ gives people with type 2 diabetes up to 24-hour duration of action¹
- 82% of people were observed using ONCE-DAILY Levemir™ + orals¹

ONCE-DAILY modern basal insulin

*A high Emotional Quotient
can guarantee the sweetness of a bond.*



**COMPLETE CONTROL
RIGHT
FROM THE START**



for patients with **type 2 diabetes**

PIOGLITAZONE HCl

PIOZONE[®]

15 mg and 30 mg Tablet

**The Durable Foundation
that Protects and Prevents**

METFORMIN HCl

GLUMET[®]-XR

500 mg Extended-Release Tablet

**BASIC Glycemic Control
with eXtended Results**

GLICLAZIDE

GLUBITOR[®]-OD

30 mg Modified-Release Tablet

Tamang-tama sa Diabetes

CANDESARTAN CILEXETIL

CANDEZ[®]

8 mg and 16 mg Tablet

Discover the Treasure Within

ROSUVASTATIN CALCIUM

ROSWIN[®]

10 mg and 20 mg Film-Coated Tablets

**The Powerful ROSe that
WINS Healthy Hearts**

GLIMEPIRIDE

NORIZEC[®]

1 mg, 2 mg and 3 mg Tablet

**Fast and Precise
Glycemic Control**

FENOFIBRATE

FENOFLEX[®]

160 mg Capsule

**FLEXing the Ideal Profile in
Diabetic Dyslipidemia**

CILOSTAZOL

TROMBOCIL[®]

50 mg and 100 mg Tablet

Walk More ! Live More!

CANDESARTAN CILEXETIL HYDROCHLOROTHIAZIDE

CANDEZ[®] PLUS

16 mg / 12.5 mg Tablet

Discover the Treasure Within

Full prescribing information is available upon request.

Unilab 'yan !



LRI, 2/F, Bonaventure Plaza, Ortigas Ave., Greenhills, San Juan City, Philippines

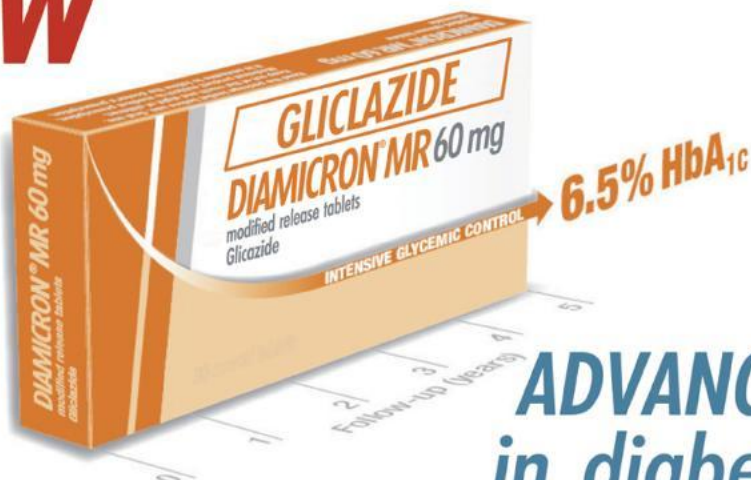
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GLICLAZIDE

DIAMICRON[®] MR 60

Scored Tablets

NEW



ADVANCEs in diabetes

- Evidence-based medicine including the ADVANCE study, the largest morbidity-mortality trial in diabetes¹⁻⁵
- Intensive and progressive glycemic control with well proven tolerability and weight neutrality^{1,2,7}
- The first scored modified-release formulation allowing progressive titration⁶
- Protective on the β -cell^{8,9} and the cardiovascular system^{1,3,5,10}

1. The ADVANCE Collaborative Group. N Engl J Med. 2008;358:2560-2572. 2. The GUIDE Study. Eur J Clin Invest. 2004;34:535-542. 3. The STENO 2 Group Study. N Engl J Med. 2008;358:580-591. 4. The CONTROL Study. Diabetologia. 2009;52:2288-2298. 5. Khalangot M, Tronko M, Kravchenko V et al. Diabetes Res Clin Pract. 2009;20:611-615. 6. Diamicron MR 60 mg. Product Monograph. 7. Drouin P. and the Diamicron MR Study Group. J Diabetes Complications. 2000;14:185-191. 8. Sawada F, Inoguchi T, Tsubouchi H, et al. Metabolism. 2008;57:1038-1045. 9. Del Guerra S, D'Aleo V, Lupi R, et al. Diabetes Metab. 2009;35:293-298. 10. Katokami N, Yamasaki Y, Hayaishi-Okano R, et al. Diabetologia. 2004;47:1906-1913.

1 to 2 tablets* at breakfast

*In most patients



Full prescribing information
available upon request.

