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Personal Physician

HealthWise

News to enrich your lifestyle

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Can You Hear Me Now?
Research and Technology Bring Hope for Alleviating Hearing Loss

Do you have trouble hearing above background noise, or following a conversation when more than one person speaks at a time? Do you frequently misunderstand what people say and respond inappropriately? Are you often asking people to repeat themselves, or think they mumble? Is it difficult to distinguish hearing an 's' from an 'f' or to understand what children are saying?

These symptoms can indicate sensorineural hearing loss (SNHL), a growing concern in our maximum-volume world, currently affecting an unprecedented 50 million Americans of all ages. Seniors are impacted most – hearing loss is experienced by one out of three people ages 65 to 74, and one out of two people over 75. The leading cause of SNHL is the natural aging process itself, which causes changes in blood flow to the ear, and weakens or breaks hair cells in the inner ear, or cochlea. These cells are responsible for translating sound vibrations into electrical signals sent to your brain to help distinguish sounds.

A secondary cause is exposure to loud noise (mowers, drills, concerts), as evidenced by aging rockers like Sting, who attributes his hearing loss to decades of highly amplified music making. Even the young are not immune, with one in five teenagers similarly afflicted, due to their habitual use of earbuds with portable music devices. While a normal conversation registers just 60 decibels (dB), we are frequently exposed to short

bursts of sound over 85 dB which may damage hearing over time, such as car horns (115 dB), snowmobiles (120 dB) or fireworks (150 dB). Regardless of the cause, hearing loss is permanent, and until now, considered irreversible and inevitable.

New research, however, shows promise in treating SNHL. The Hearing Restoration Project, based on the critical discovery that birds and fish can naturally regenerate their inner ear hair cells and restore their hearing after damage, is well underway. The lead researchers have already successfully proved that inner ear cells can be regenerated in mice, partially restoring their hearing. "Scientists believe that within a 10-year timeframe, we will have a biological restoration cure for hearing loss," asserts Shari Eberts, Chairman of the Board of Directors for Hearing Health Foundation.

In the meantime, technological advances are making it possible to turn down the noise while dialing up the conversation. Wireless hearing aids, which process and amplify sound and direct it out to the ear canal, are increasingly equipped to link to any Bluetooth-enabled device, and "stream" the sound to a mobile device or tablet. Assistive listening devices, often referred to as binoculars for the ears, work with or without hearing aids. These can include FM (radio waves), infrared (light waves), and induction or hearing loop systems (magnetic fields) that can transmit sound at some distance from a receiver.

The biggest problem: Only one in seven Americans who could benefit from a hearing aid wears one. Research shows most people live with hearing loss for more than seven years before it is acknowledged and help is sought. And that, say experts, is unfortunate because a litany of bad outcomes could be minimized in older adults; including balance problems, a higher risk of depression and dementia, and a measurable decline in cognitive abilities. The feeling of isolation is also eliminated, according to *Hearing Health & Technology Matters:* "Movies, cards, family gatherings – you can start enjoying these activities again. A hearing aid may be the best social step forward you can make."

If you are experiencing signs of hearing loss, do not delay getting help. Please contact my office for a screening and evaluation.

From the desk of William E. Kim, MD

Dear Patient:

With the change of seasons from summer to fall, you may be trying to make the most of the shorter daylight hours with brisk walks or long bike rides, aided by a quick boost of power from an energy bar. You'll find valuable information in this issue of *HealthWise* on how to get the most out of these convenient snacks, and when to opt for "whole" foods instead.

We also turn an attentive ear to the important problem of hearing loss and why it affects people of all ages, particularly seniors. Fortunately, the latest technological advances and devices which amplify and improve hearing are more sophisticated, yet easier to use than ever before.

Finally, if you've ever wondered why physicians frequently order blood tests, read on and you'll understand just how much information can be extracted from a single drop of blood. The results are used not only to identify disease and manage treatment, but also to optimize wellness…and isn't that what personalized medicine is all about?

Wishing you the best of health,

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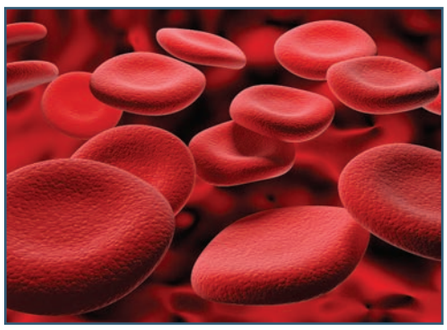
Blood Work: Drops of Health

If you count up the number of blood tests you have undergone in your lifetime, the total may well be in the hundreds. This non-invasive, basic medical tool yields a profusion of complex results that guide a vast majority of clinical decisions. Each drop of blood uncovers crucial indicators of your overall health, helping physicians monitor and manage your treatment and providing warning signals that help identify problems early on.



Recent advances may usher in a new era of blood testing aimed not only at monitoring disease, but optimizing wellness. Blood tests may become available that allow diagnoses of concussions without needing conventional scans, offer a highly accurate method of screening for chromosomal abnormalities early in pregnancy, and predict the development of Alzheimer's disease years before the first symptoms appear. Even the need for routinely drawing multiple tubes of blood may ultimately be eliminated. A promising innovation from Silicon Valley automates and miniaturizes blood samples, requiring a simple finger stick, and the ability to run dozens of tests using only a drop of blood.

A complete blood count, or CBC (see sidebar), offers an insider's view of the cellular components of blood – red blood cells, white blood cells and platelets. Size, shape and concentration may uncover the reasons behind fatigue, spot an infection (frequently indicated by an abundance of white cells) or detect blood clotting problems (often seen with low platelet counts). And because your blood cells regenerate every 120 days, periodic testing provides a clear, evolving picture of the effectiveness of treatments and lifestyle changes. Beyond the CBC, there are vast amounts of information to be extracted from a few drops of your body's most vital fluid. These can include:

Heart. A lipid profile, including cholesterol and triglyceride numbers, can determine your risk of cardiac disease. Patients at increased risk may be tested for C-reactive protein (CRP) or brain natriuretic peptide (BNP) protein. CRP is a blood protein that rises if there is inflammation in your body, which plays a role in the process of fatty deposits that clog your arteries (atherosclerosis) and can be a marker for heart disease. Elevated levels of BNP, produced by your heart and blood vessels, help diagnose and evaluate heart failure and other heart conditions. In addition, some cardiologists are now measuring the subparticles in LDL ("bad" cholesterol) to more comprehensively assess high-risk patients.

Kidney and liver. A comprehensive metabolic panel (CMP) is a frequently ordered panel of tests that provide the current status of your kidneys, liver and electrolyte and acid/base balance as well as all your blood sugar and blood proteins.

Thyroid. The master of the metabolism, when your thyroid is out of balance, it affects your whole system. An underperforming thyroid (hypothyroidism) is one of the most underdiagnosed conditions in America, yet up to 15 percent of people suffer from it, according to population-based studies. If the standard TSH (thyroid-stimulating hormone) test shows abnormal results, additional bloodwork may be indicated.

Diabetes. Blood tests can pinpoint prediabetes, or indicate how well a patient's diabetes is being controlled. In addition to the standard, fasting blood glucose test, a hemoglobin A1C test may be ordered to measure levels of blood glucose over the previous two to three months.

What is a CBC?

While the complete blood count may not show every blood-related issue, the information stored in each component provides a critical baseline of your health.

- **Red blood cells (RBCs).** Too few can indicate anemia resulting from autoimmune diseases (such as lupus); long-term infections; or poor diet and nutrition. Too many RBCs can result from bone marrow disease; low oxygen levels in the blood due to heart or lung disease; or dehydration. The appearance of the RBC also provides clues to a diagnosis. Small cells containing insufficient amounts of hemoglobin may be due to iron-deficiency anemia, and large oval cells suggest anemia due to a deficiency of folate (folic acid) or vitamin B12.

  Normal range: Male 5-6 million cells/mcL; female 4-5 million cells/mcL

- **White blood cells (WBCs).** A decreased count is seen in autoimmune diseases. High numbers may indicate infectious diseases or inflammatory diseases (rheumatoid arthritis or allergy).

  Normal range: 4,500-10,000 cells/mcL

- **Platelets.** An important measure of the blood's protective mechanisms for stopping bleeding (clotting), a high number can lead to blood clots in small blood vessels, and paradoxically in some diseases, result in excess bleeding. A low platelet count may be the cause of prolonged bleeding or other medical conditions; excess platelets may point toward a bone marrow problem.

  Normal range: 140,000-450,000 cells/mcL

Sources: Mayo Clinic, Medline Plus

Nutrition Corner

Raising the Bar on Nutritional Snacks

For a quick boost of energy before exercise, a satisfying replenishment afterwards, or a convenient meal on the go, you may have considered reaching for one of the dozens of energy bars available now. Since 1987 when the "Power Bar" made its debut, both the composition and selection of energy bars have increased exponentially. However, experts warn, all energy bars are not created equal. While some are genuinely healthy, others may provide no more nutrition than a candy bar.

In general, most energy bars are concentrated high carbohydrate or high protein, and both types are frequently fortified with vitamins and other nutrients. Picking the "right" bar depends on your needs.

Before high-intensity activities (cycling, running), you may benefit from a higher carbohydrate energy bar, to give you more reserves during exercise. They may contain between 15 to 60 grams of carbs, ranging from the complex kind found in rice or oats, to simple ones, such as in dried fruit. Carbs are the best fuel for working muscles, according to the Academy of Nutrition and Dietetics, because 50 to 60 percent of energy used during workouts of more than one hour is derived from them.

As a meal replacement, choose one with a higher protein content (between 5 to 25 grams), added vitamins and minerals, and more calories (between 250 and 300), and complement with foods like fruit or yogurt.

Many protein-rich bars are touted as "recovery" bars to help muscles rebuild and refuel after strenuous sessions of pumping iron or cycling. However, most casual exercisers will not need to replenish their stores of protein, and instead may end up ingesting the equivalent of another meal. Energy bars can also serve as a great afternoon pick-me-up, when limited to between 100-180 calories, with an optimal mix of protein, fiber and carbs.

Well-balanced energy bars should include a variety of the following:

- Between three to five grams of fiber and less than five grams of fat.
- Dried fruit such as dates, raisins and apricots which contain plenty of fiber and antioxidants as well as satisfying sweetness.
- Flax and chia seeds add crunch and texture, along with a robust variety of micronutrients, healthy unsaturated fats, omega-3's, fiber and protein.
- Complex carbohydrates such as oats, which also contain fiber and protein.

Avoid:

- Unnecessary calorie boosters like mocha, coconut flakes and 'faux' yogurt coatings, as well as additions like guarana, which can contain up to three times as much caffeine as a cup of coffee.
- Unrecognizable ingredients, such as sugar alcohols like xylitol or maltitol, which are hard to digest and may cause stomach discomfort.

Finally, while occasional consumption of energy bars may be a convenient substitute for "whole" foods, Liz Applegate, nutritionist, University of California at Davis, advises: "Real food offers more variety, a wider range of nutrients and antioxidants, and is much more satisfying."