

COMPLIMENTARY ISSUE

# Something More

*for you* THE OSTEOPATHIC PATIENT VOL. 9, ISSUE 1, 2007

**How to avoid hospital dangers and encourage a healthier health system**

**A body to die for: performance enhancing drugs**

**What is Munchausen's by proxy?**

**Omega-3: making good fats better**

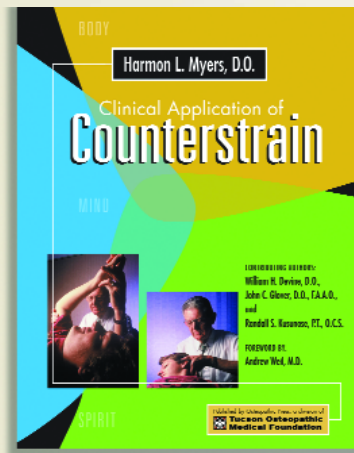
**Childhood obesity**

*John F. Manfredonia, DO specializes in Hospice Palliative Medicine.*

# Tucson Osteopathic Medical Foundation

*The mission of the Tucson Osteopathic Medical Foundation shall be the achievement of excellence, innovation and caring in advancing community health care issues, enhancing medical education and developing sustainable support of projects which impact the lives of many today and in the future.*

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by Harmon L. Myers, DO

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OMT offers a noninvasive method to circumvent the need for drugs and surgery in order to relieve pain, restore function, and maximize the body's natural inclination towards health. Dr. Myers is a national authority and teacher of the counterstrain method of OMT. He has been teaching courses for 20 years in Counterstrain method and since 1997 has been a preceptor for the Program in Integrative Medicine at the University of Arizona.

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*cover photo: David Sanders*

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# OMEGA-3:

BY JANNI LEE SIMMER

Diets high in omega-3 fats have been credited with fighting everything from heart disease and arthritis to depression and cancer. But for behavioral nutritionist Joy Kettler Gurgevich, these essential fatty acids are part of a bigger picture.

Omega-3 fats are building blocks for hormones that help prevent inflammation; omega-6 fats, on the other hand, encourage inflammation. But it isn't as simple as saying that inflammation is always bad, and that we should therefore stock up on omega-3. "Most people recoil when they hear the word inflammation," Gurgevich says. "But inflammation helps the body control infection and injury and repair tissues that have been damaged." If someone twists an ankle, for instance, omega-6 helps tell the body to send the ankle what it needs to become inflamed—and thus cushioned and protected from further harm.



When inflammation becomes too severe or goes on for too long, though, it promotes disease rather than healing. American diets tend to encourage such excessive inflammation, because they tend to contain much more omega-6 than omega-3. That's why upping omega-3 intake is important; it brings things back into balance.

## OMEGA-3 SOURCES

The best sources of omega-3 fats are fish, especially oily fish from cold, northern waters such as salmon, mackerel, kippers, sardines, and herrings. Gurgevich recommends eating seven to 10 ounces of such fish per week, an amount equivalent in size to about two decks of cards. She also recommends sticking to wild fish when possible, because wild fish are higher in omega-3 than farm-raised varieties.

Grass-fed cows are also a source of omega-3, Gurgevich says, but corn-fed cows are higher in omega-6. Chicken and eggs can contain omega-3 as well—if one chooses organic, free-range varieties. "You have to look at the diet of the animal that you're eating," Gurgevich says. "The closer to nature, the better. A free-range or pasture-fed animal has what it needs for its optimum health (with plenty of omega-3), and that means we get what's best for our health, too."

# KEEPING FATS IN BALANCE

Omega-3 fats aren't only available to meat-eaters, however. "One of the very best plant sources of omega-3 are flax seeds," Gurgevich says, adding that those who buy whole flax seeds instead of seed meal should be sure to grind the seeds well, since otherwise the husks will keep the seeds from being digested. Other vegetable sources of omega-3 include hemp seeds, pumpkin seeds, walnuts, tofu, purslane, olive oil, canola oil, and soy oil.

Gurgevich doesn't recommend getting omega-3 fats from fish oil tablets, however, at least not if other options are available. "I don't



believe the capsules are nearly as effective," she says. "They're highly processed, and we don't know, when we extract oils from fish, whether we preserve their goodness or not."

## OMEGA-3 HEALTH CLAIMS

How can one evaluate the many specific health claims made about omega-3 fats? By taking a look at the research studies, Gurgevich

says, and making sure those studies have been conducted over a long period of time with a large group of test subjects.

The Mayo Clinic has done just that. It concludes that upping omega-3 intake can reduce triglyceride levels, lower blood pressure a little, and reduce the risk of heart attacks for those with a history of heart disease. There's also some evidence—though it's not as strong—that omega-3 can reduce joint tenderness and morning stiffness for rheumatoid arthritis patients, and that it can lower the risk of heart attacks for those without a history of heart disease.

**THE BEST SOURCES OF OMEGA-3  
FATS ARE FISH SUCH AS  
SALMON, MACKEREL, KIPPERS,  
SARDINES, AND HERRINGS.**

**ONE OF THE VERY  
BEST PLANT SOURCES  
OF OMEGA-3 ARE  
FLAX SEEDS**

Many of the other touted omega-3 benefits are more tenuous; the Mayo Clinic says there isn't any good evidence that omega-3 fats prevent strokes and artery hardening, reduce the risk of cancer, mitigate depression and bipolar disorder, or ease conditions such as ulcerative colitis, Crohn's disease, asthma, and eczema. And there's good evidence that omega-3 doesn't help fight diabetes or keep heart and kidney transplant patients from rejecting their new organs.

### **THE BIGGER PICTURE**

In the larger scheme of things, though, fats are a necessary part of our diet, playing roles in building cell membranes; regulating blood pressure, heart rate, and blood clotting; delivering vitamins to the body; and maintaining healthy hair and skin. The trick, say Gurgevich and the Mayo Clinic both, is not to avoid fats entirely, but to consume them in moderation, and to stick to "good" fats whenever possible.

A diet too high in saturated or trans fats can raise blood cholesterol and increase the risk of heart disease.

Omega-3 and omega-6 are both polyunsaturated fats, however. Monounsaturated and polyunsaturated fats do less harm, and consuming them in reasonable quantities likely even carries some benefits.

The U.S. Department of Agriculture and the Department of Health and Human Services both recommend that fat make up no more than 35 percent of our daily calories—and that no more than 10 percent of those calories



come from saturated fat. The American Heart Association further recommends that no more than one

percent of our diet come from trans fats. The amount of all kinds of fat in foods can often be determined by reading food labels.

Gurgevich says that ultimately, even controlling fat intake and eating "good" fats is part of a bigger picture. "We're all at our best when we eat a wholesome diet and eliminate highly processed foods. If we eat healthy, nourishing foods, our bodies will serve us well." ❖



# Addressing Childhood Obesity



By Janni Lee Simner

**W**hen talking to children about their weight, it's important to bring the parents in on the discussion, says bariatrician Mitchell Edelstein, DO. Edelstein, who is board certified by the American Board of Bariatric Medicine, helps patients lose weight under medical supervision. "Without the family helping out, there's no way a kid's going to succeed," he says.

The number of overweight children has doubled in the past 20 years, and the number of overweight teens has tripled, according to the Centers for Disease Control (CDC). Those kids and teens are at increased risk for high cholesterol, high blood pressure, cardiovascular disease, sleep apnea, and type 2 diabetes. "It's a serious problem," says Edelstein, who works at Golden West Medical Center in Tucson.



"I think a lot of things contribute to it. Kids have become more sedentary, and at the same time we're all eating quite a bit more."

Edelstein suggests parents concerned about their children's weight talk to their pediatrician or family practitioner. While adult weight recommendations don't apply to children, who are growing and changing rapidly, doctors can look at growth and weight charts designed for kids and adjusted for their age, height, and gender. They can evaluate other factors, such as weight circumference.

Overweight children do have one advantage over overweight adults. "It's a lot easier to develop habits and make lifestyle changes when we're young," Edelstein says. He adds that those changes should focus on two things: eating less and moving more.



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STEPS TO A HEALTHIER YOU

Based on the information you provided, this is your daily recommended amount from each food group.

<p><b>GRAINS</b> 6 ounces</p> <p><b>Make half your grains whole</b></p> <p>Aim for at least <b>3 ounces</b> of whole grains a day</p>	<p><b>VEGETABLES</b> 2 1/2 cups</p> <p><b>Vary your veggies</b> Aim for these amounts <b>each week:</b></p> <p><b>Dark green veggies</b> = 3 cups</p> <p><b>Orange veggies</b> = 2 cups</p> <p><b>Dry beans &amp; peas</b> = 3 cups</p> <p><b>Starchy veggies</b> = 3 cups</p> <p><b>Other veggies</b> = 6 1/2 cups</p>	<p><b>FRUITS</b> 1 1/2 cups</p> <p><b>Focus on fruits</b></p> <p>Eat a variety of fruit</p> <p>Go easy on fruit juices</p>	<p><b>MILK</b> 3 cups</p> <p><b>Get your calcium-rich foods</b></p> <p>Go low-fat or fat-free when you choose milk, yogurt, or cheese</p>	<p><b>MEAT &amp; BEANS</b> 5 ounces</p> <p><b>Go lean with protein</b></p> <p>Choose low-fat or lean meats and poultry</p> <p>Vary your protein routine—choose more fish, beans, peas, nuts, and seeds</p>
<p><b>Find your balance between food and physical activity</b></p> <p>Be physically active for at least <b>60 minutes</b> every day, or most days.</p>		<p><b>Know your limits on fats, sugars, and sodium</b></p> <p>Your allowance for oils is <b>5 teaspoons a day.</b></p> <p>Limit extras—solid fats and sugars—to <b>195 calories a day.</b></p>		

[www.mypyramid.gov/kids](http://www.mypyramid.gov/kids)

## Eating Smarter

According to the United States Department of Agriculture (USDA), a healthy diet contains a balance of grains, vegetables, fruit, milk, and meat and beans. The USDA's "My Pyramid" web site ([www.mypyramid.gov](http://www.mypyramid.gov)) allows children and adults to design food pyramids personalized for age and gender. "My Pyramid for Kids" ([www.mypyramid.gov/kids/](http://www.mypyramid.gov/kids/)) provides further resources to help children understand healthy eating, including a food worksheet and an interactive game.

Parents can offer children healthy foods, and they can also help children learn to control portion sizes. Edelstein suggests setting reasonable portions on plates for children

instead of having them serve themselves.

Parents can also establish rules about where the family eats to cut down on eating in front of the television or computer, where we often don't think about how much we consume.

"Kids don't really know how many calories are in food," Edelstein explains. He adds, "If we want them to eat well, we need to eat well, too, to serve as role models."

Edelstein recommends making an effort to sit down and eat with children, rather than grabbing food on the run. Taking time for breakfast is especially important. "One thing most people who lose weight and keep it off tend to have in common is that they eat breakfast," he says.

## Adding Exercise

The CDC recommends children get at least 60 minutes of physical activity most days of the week. Active children not only tend to maintain a healthier weight; they're also stronger and more fit, have lower blood pressure, experience less anxiety, and feel better about themselves.

Edelstein says parents should encourage exercise the same way they encourage healthy eating: by example. Parents and kids can ride bikes together, play outdoors and visit local parks together, and go for walks together. If parents work out, their children can work out with them; parents can also help their kids get involved in organized athletics and other



activities. The CDC recommends that children and teens find activities they enjoy, so that they won't give up on them too easily; that they become more active slowly, in order to avoid injuries; and that they cut sedentary computer and television time down to no more than one to two hours a day.

The National Institutes of Health's "We Can!" program ([wecan.nhlbi.nih.gov](http://wecan.nhlbi.nih.gov)) offers further ways for kids to eat better and become more active.

## Maintaining Balance

Not all weight control measures are appropriate for children; in particular, Edelstein says, weight loss medications aren't recommended for young patients. The CDC says no child should be placed on a weight loss diet without consulting a health care professional, and it recommends that instead of losing weight, children try to slow the rate of weight gain, while still allowing for healthy

growth and development.

For teens, weight loss is a particularly tricky subject. "It's a fine line," Edelstein says. "A lot of teens already have a negative self image. You want them to be aware of weight, but you don't want them to obsess about it." It's especially important to make sure teens don't engage in harmful behaviors to lose weight, such as eating too little, bingeing and purging, or smoking to help get their weight down.

Regardless of a child's age, Edelstein says, parents and doctors alike should make sure they're not to be too callous or too stern in their efforts to encourage weight control; lecturing children—or adults for that matter—rarely accomplishes much.

"You have to treat the whole kid," he says, adding that DOs, in particular, are trained to do this well. "The holistic approach makes us more receptive to dealing with the obesity crisis." ♦



## Not-So-Light Cigarettes

There's no such thing as a light cigarette—at least not from a health perspective. Not only do smokers of "lights" have as much nicotine and tar in their bodies as other smokers, they're also less likely to quit smoking than those who choose "regular" cigarettes, according to studies in *Cancer Epidemiology Biomarkers & Prevention* and the *American Journal of Public Health*.

## Second Hand Benefits

A smoking ban in Scottish pubs improved the respiratory health of pub employees within a month of the ban's taking effect, according to the *Journal of the American Medical Association*.

## Early Exposures

Lead exposure and prenatal smoking both increase a child's chance of having attention-deficit hyperactivity disorder (ADHD), according to *Environmental Health Perspectives*.

## Irritating Incense

Burning incense releases high levels of pollutants into the environment, at least when the incense is burned in enclosed places, according to studies conducted in European churches and published in the *European Respiratory Journal* and

*Environmental Science and Technology*.

Candles also polluted the air, but to a far lesser extent.



# Preventing Hospital Mistakes that Lead to Death and Injury

as many as 100,000  
people die every year  
in hospitals as a result  
of medical errors

by Karen Wood

Hospitals are germ, frightening places. They are full of sick people, sharp objects, complex machinery and antibiotic-resistant bacteria, and staffed with overworked nurses, sleep-deprived residents, and dysfunctional working teams. Doctors with illegible handwriting scribble medication orders riddled with abbreviations and decimal points that, if misinterpreted, could be catastrophic. And all of this happens in a cauldron of high-stakes tension and life-or-death scenarios.

Hospitals are also lifesaving places where dedicated, compassionate staff treat and cure patients, deliver healthy babies, repair injuries, and restore health. The word miracle is not used infrequently. And there are a myriad of less dramatic cases that lie in between. However, one of the prices of improved technology and higher cure rates is a complex system that breeds thousands of preventable medical errors, mistakes with consequences that can be devastating and sometimes deadly.

"I'm a physician and I wouldn't go to the hospital unless I identified it as a serious condition," says John Manfredonia, DO, a longtime family practitioner who is now

medical director of VistaCare Hospice. Americans believe that air travel is safer than health care. A Harvard School for Public Health survey reported that more than 40 percent of nurses wouldn't recommend their own hospital to family members.

In 1999, the Institute of Medicine (IOM) produced a report called "To Err is Human: Building a Safer Health System." In addition to the alarming statistic that as many as 100,000 people die every year in hospitals as a result of medical errors, it outlined a system beset with problems. The IOM report concluded that the deaths should be considered a national epidemic; the report was based in part on studies sponsored by the federal Agency for Healthcare Research and Quality. HealthGrades, an independent health-care quality company, found almost double the errors—195,000—for Medicare admissions from 2000-2002.

To put it in perspective, "medical errors were the eighth leading cause of death in

2004," says Manfredonia, outstripping automobile accidents, breast cancer, or AIDS. "Of those medical errors, over 50 percent occurred in hospitals, and 15 percent of those are serious, potentially life-threatening."

The IOM statistics have been well buttressed. In September, IOM president Harvey Fineberg spoke at University Medical Center. More than 70 studies, he said, document the poor quality of care, and more than 30 studies document medication errors. "There are large gaps between the care that is needed and the care that is received," he told the audience. In one study, 46 percent of patients didn't get the recommended care and 11 percent got potentially harmful care.

The epidemic of errors hasn't gone unnoticed by the government, hospitals, or medical professionals. "I think the error rate is unacceptable," says Richard Rodriguez, MD, senior vice president and chief medical officer for TMC HealthCare. Federal agencies have launched a major initiative to reduce errors in federally funded programs. The private sector is studying "best practices" of other hospitals, and working to standardize processes. "It's something we're trying to get our hands around," says Rodriguez. "Health care professionals like me, this is all we do, day in and day out."





Part of the problem may be an oversupply of sometimes conflicting recommendations and standards coming from a variety of industry groups and government organizations. Hospitals say they are also overburdened by the accompanying data collection and analysis required to complete the reports.

In November, the National Quality Forum (NQF) and a coalition of agencies and quality groups agreed on a single set of 30 "safe practices" that all hospitals should use. The NQF advises the government on health-care quality measurements and standards. The new practices, which include a "culture of patient safety," will require disclosure of errors to

affected patients and families, programs to lessen "hand-off" errors during shift changes, and evaluation of non-nursing staff.

All Tucson hospitals participate in the Institute of Healthcare Improvement's 100,000 Lives Campaign, which attempts to curb errors by improvements in six different areas. They include rapid response teams, medication checks and rechecks, adoption of the latest heart attack treatments, and measures to reduce hospital-acquired infections. The campaign's goal was to reduce hospital deaths by at least 100,000 over 18 months—its first report, issued this past summer, found that

122,342 lives were saved by the hospitals adopting these measures.

### **What's going wrong**

Errors can range from operating on the wrong limb to being mistaken for another patient and receiving an unnecessary—and perhaps dangerous—test or procedure. And there are the people who enter the emergency room with a heart attack or stroke and are mistakenly sent home, undiagnosed and untreated. There are people who fall through the cracks in the triage system, which is





designed to identify serious cases that come into the emergency room. A week after surgery, Mark Flint found himself back in the hospital with severe pain and difficulty breathing. "The ER staff should have put two and two together and realized I was having a pulmonary embolism, but instead told me to take a seat." After waiting an hour and being told it would take three more to be seen, Flint went home. "I saw my PCP (primary care physician) the first thing the next morning and she took about three minutes to figure out what was going on and had me rushed to the hospital. I could have, and probably should have, died. A lot of luck plus a strong heart, able to keep pushing blood through, kept me alive. It was a still a very near thing..."

Medication errors are the most common mistakes that occur in hospitals, harming as many as 770,000 Americans every year. Although most are minor, when errors are significant, they can lead to disability and death. They can increase the length of

hospital stays, adding \$16,000 to \$24,000 to an individual hospital bill. Because millions of medications are given every day and the process involves a complicated sequence of events, there are many ways mistakes can happen. The wrong medication can be ordered, the order may be misinterpreted by nursing or pharmacy staff, it may be administered to the wrong patient, at the wrong time, or at the wrong dose. A medication allergy may not be recognized or documented. A new medication may interfere with an existing medication. Powerful drugs used incorrectly can kill.

Susan Guerrero was victim of a medication oversight that could have been very serious. An unexpected hospital stay left her without her usual medications. "As the days progressed," she said, "nobody asked me (I was very ill and unable to talk) about the meds I was normally taking. After a few days, the nurses were wondering why I had VERY high blood pressure."

Hospitalist George Haloftis, DO sees that particular error from the other side of the stethoscope. One of the biggest areas of mistakes, he says, lies in reconciling medications—what prescriptions patients regularly take, what medicines they receive in the hospital, and what medications they will continue to take after going home.

# "Medical errors were the eighth leading cause of death in 2004, outstripping automobile accidents, breast cancer, or AIDS."

Diana Wheeler still mourns a family friend who died following a hospital stay under circumstances that remain unclear. Days after Dorothy entered the hospital after a fall, Wheeler couldn't get an answer from the medical staff about why admission was necessary. She couldn't even get a call back from the physician attending Dorothy. Her 88-year-old friend became unresponsive, possibly because of receiving excessive doses of her regular medication, and Wheeler insisted that she be discharged. "Hallelujah," Dorothy said, in one of her last few lucid moments. As she pushed her friend's wheelchair down to the car (no staff member was available), Wheeler told the nurses, "I think you've killed her." Dorothy died several weeks later. The cause listed on her hospital chart—unintentional overdose.



## Why mistakes happen

"It's communication and time," says Manfredonia. "We're all rushed and short-staffed. That's probably the greatest facilitator of medical errors—lack of time."

Time pressure is a well-acknowledged contributor to poor patient care. But the potential for errors may be an inherent part of the whole business of housing and treating the sick. Yale sociologist Charles Perrow says systems that are "tightly coupled and interactively complex," such

as hospitals and aviation, are more prone to catastrophic errors. Aviation has successfully implemented systems that make air travel safer; while hospitals have been newly awakened to the dangers particular to their business. In the

airline industry, for example, hierarchies are less rigid, more attention is paid to expertise than rank, standardization is well, standard, and checks and double-checks are routine. All contribute to a well-functioning team more likely to catch errors before they occur.

Although error reporting is routine, hospitals have recently amped up their emphasis on identifying and analyzing errors. "We actually measure error reporting and we like to see those rates as high as possible," says Rodriguez, adding that he's talking about high rates of reporting errors, not high rates of errors themselves. It's all in the name of figuring out why an "adverse event" happened. "We're really looking for opportunities to make it better...what can we do to keep this from ever happening again?"

Many believe that the industry will go a long way toward healing itself if its players learn to talk to each other. "The number one cause of error is communication in origin," agrees Andreas Theodorou, MD, pediatric intensivist and associate head of the Department of Pediatrics at the University of Arizona College of Medicine. The various nations that staff a hospital—each with their own culture, language, and priorities—complicate the delivery of error-free care.

# "It's communication and time. We're all rushed and short-staffed. That's probably the greatest facilitator of medical errors—lack of time."

Doctors have their own hierarchies arranged by experience and specialization. The pecking order continues through and within the ranks of nurses, pharmacists, technicians, and other staff members. Some liken hospital staff to tribes working in silos rather than teams working together. Pilots, notes Theodorou, have to demonstrate competency in interpersonal relations—"maybe we should too, because those communication skills are essential." People who don't understand or appreciate what others do don't tend to work well together. A nurse who is intimidated by a physician may not question an order. A pharmacist's expertise may go unheard if his knowledge is not valued.

Although individual mistakes occur, error analysis is focusing on the systems that drive hospitals—the systems that control staffing, for example, can lead to exhaustion and time pressure that contribute to errors. A low nurse/patient ratio is especially important on critical care units, like those devoted to cardiac or intensive care. A nurse's well-trained eyes and technical expertise may go unused if her time is spent on documentation. Insurance coverage that

typically mandates short hospital stays may result in patients' discharge before they are medically stable. Reimbursement that pays for procedures and not for a doctor's time means that physicians no longer have the luxury of actually listening to a patient describe symptoms.

The uninsured may use emergency rooms for routine medical care, seeing a different physician every time with no continuity of care to shield against error. Malpractice pressures may result in patients receiving unnecessary or potentially dangerous tests because physicians are afraid of being sued if they don't check out every possibility, no matter

how remote. High malpractice insurance may ultimately lead to fewer specialists being

available; they may practice in the community but refuse to take emergency calls, they may choose to relocate to a climate with malpractice caps, or they may choose to leave the profession altogether. Arizona, for example, has one of the worst physician shortages in the country, according to the Arizona Medical Association. And that can lead to errors, and delayed and substandard treatment. If you sever a finger and there are no hand surgeons taking ER call in your community, you may have to seek care a long way from home.

## When mistakes occur

"I've always said that you will never have infallible health care," says Haloftis. "It's never going to happen, just like you're never going to have infallible car mechanics, waiters, or anyone else in our daily life. We're human beings, we make mistakes. What we hope is those mistakes will be few and far between, and not life-threatening."

Inculcated in the "first, do no harm" tenet they learn in their training, physicians may be shattered by a mistake, wracked with guilt and plagued with a loss of self-confidence. "There are two victims when there is an error—one victim is the patient, the other victim is the







physician," says Manfredonia. Historically, doctors threatened with malpractice were counseled by attorneys not to admit their mistakes, a practice that is changing. Arizona passed the "I'm Sorry" law several years ago, making a physician's apology inadmissible in civil court. Support groups have sprung up, allowing doctors to talk about their failures in a supportive setting.

Doctors learn to live with the possibility of making errors. "It plays on your mind but you try to do your job and take care of the patient the best you can," says Haloftis. "We're basically there to help people. Nobody is there to hurt anyone on purpose."

### What is being done

Because the problem is complex and multifaceted, its solutions will be no less. Improving technology, practicing more

compassion, lessening stress levels, increasing training, reforming the malpractice system—all will play a part in reducing errors, said IOM's Fineberg. "The solution isn't going to be one thing," agrees Rodriguez. "Technology will be a very significant part of the long-term fix but so will training of doctors, emphasis on standardized care, and utilization of the best evidence in the literature. There are a lot of things that need to be piled on top of one another and it's going to take awhile."

Even though the process has been slow, already errors are down. Computerized medication order systems, one of the most highly touted and expensive solutions, can lead

to a significant decrease in errors and substantial savings—as much as \$500,000 per hospital each year. UMC, for example, lowered errors by 95 percent in the areas of the hospital served by the system. Tucson Medical Center is planning to implement its own system by the end of next year; St. Mary's and St. Joseph's hospitals are using computerized medication ordering in their emergency departments.

In the interim, hospitals are addressing your doctor's illegible scrawl, and limiting or forbidding the use of abbreviations in medication orders. "Hospital and medical staff continually work to improve even the penmanship of physicians," says Haloftis. To lessen the chances of grabbing the wrong vial



by mistake, hospitals are making sure look-alike and sound-alike meds aren't stored close together. Pharmaceutical companies are being lobbied to change the names of medicines that might be mistaken for each other.

"Guard rails" is what Karin Toci, director of quality and outcomes management at UMC, calls some of the measures that hospitals are taking to reduce errors. UMC nurses are considering hourly nursing rounds to keep a closer eye on patients. Most hospitals require that someone taking a verbal medication order repeat it back to the physician. Before giving a medication, a nurse must have two ways to identify a patient and the room number can't be one of them. UMC has a team incentive program where all employees receive extra compensation when the hospital meets certain quality goals. Infection control is a big focus, especially in acute-care hospitals: staff members monitor hand-washing practices among caregivers and patient rooms are outfitted with wall-mounted waterless cleansers.

Some hospitals are investigating whether changing the mix of nurses—more RNs

and fewer LPNs and aides—will improve care. Some hospitals are turning to methods developed by manufacturing's Six Sigma program to detect and prevent errors.

"I think health care is learning," says Toci. "People are trying to be more proactive. And we're learning from each other, whereas in the past we've been very secretive about our mistakes." Statewide task forces are working together on standardization, including hospital forms and armband use (certain colors are used to designate conditions like allergies, risk for falls, and do-not-resuscitate status, and may vary between hospitals).

The University of Arizona is doing its bit to change hospital culture with a new course to teach budding doctors, nurses, and pharmacists to work together. Students in these programs met in day-long workshops this fall to figure out how to move past their differences and learn about each other, all

in the cause of working together to help their future patients. After an exercise in which they formed multi-disciplinary groups sharing specific culture traits, the students discussed what they learned. "We didn't know what each other did," said one. "If you don't know what other people do, how can you work with them?" Another said, "We can be the first ones to change this."

## Be part of the solution

Doctors stress that it is patients' responsibility to take charge of their health and, where possible, medical care. Most importantly, they say, know your medical history and current prescription use. Write it down and carry it with you at all times. Give a copy to each of your doctors and have it available in case you need to be admitted to the hospital unexpectedly.

The physician/patient relationship has changed over the past 25 years and that is good for everyone, says TMC's Rodriguez, also a board-certified internist. "When I was first practicing, it was 'whatever you say, doctor,' and that's not a very healthy thing. What's really good for care is a knowledgeable doctor and a knowledgeable patient—both." ♦



*George Haloftis, DO says physicians at hospitals are there to help people, not hurt anyone purposely.*

## What you can do

### Before you go into the hospital

- research your disease and possible treatments
- find the doctor and hospital most experienced at treating your particular medical condition; check HealthGrades Web site to see how particular hospitals rate for treating certain conditions such as heart attack, stroke, bowel obstruction, etc. [www.healthgrades.com](http://www.healthgrades.com)

### While you're hospitalized

- bring a copy of your medical history and all current prescriptions
- bring an advocate or family member; consider hiring a private-duty nurse if you are seriously ill, especially if you have no advocate
- keep a journal
- trust but verify—ask what each new medication is and what it's for
- know how to contact your own doctor if you are admitted to the hospital
- follow your gut—don't go along with a procedure you don't know anything about
- if you're transferred to another floor, ask if your chart is going with you and make sure new caregivers know about your medical history
- if you have a do-not-resuscitate order, be sure hospital staff know

### To be treated well

- introduce yourself to all hospital personnel; be friendly and open, and don't threaten
- be succinct, don't waste their time
- be polite but persistent to get answers to important questions
- have visitors—nurses and other staff tend to be more attentive to people with visitors

### In general

- give a copy of your medical history and medicines to all doctors/hospitals
- get a copy of your medical records
- if you hear nothing after a test, don't assume that everything is okay
- take your meds as directed; keep them in their original containers
- if you have a chronic disease, consider joining a support group, whether local or online

## Health News Notes

Relying on airbags and antilock brakes to protect you on the road? You're just as likely to be injured with these features as without them,

### Safety Limits



perhaps because the drivers of cars with safety features tend to drive less safely than the drivers of cars without them, say Purdue University researchers.

### Spending Limits



Think only women shop until they drop? Think again. Almost as many men as women experience uncontrolled urges to buy unneeded or unaffordable items, according to the *American Journal of Psychiatry*. Debate is currently underway as to whether to list compulsive buying in the next edition of *Diagnostic and Statistical Manual of Mental Disorders*, at least in cases where it causes significant distress or impairment.

### Critical Choices



Choosing the right hospital may be as important as choosing the right doctor. Patients at "five star" hospitals had a 69 percent lower chance of dying there than patients at "one star" hospitals, according to HealthGrades, an independent health care ratings company.

### Lost Time



Bipolar disorder sufferers lose twice as much work time as those with major depression alone, perhaps because bipolar patients remain depressed longer, says the *American Journal of Psychiatry*.





# The Dangerous Pursuit

**G**reek mythology tells us of Sirens—creatures with the head of a female and the body of a bird who inhabited a rocky island. The irresistible charm of their song lured mariners to their destruction on the island's shoals.

The myth is instructive, and the lesson as valid today as it was 3,500 years ago.

One modern temptation takes the form of a pill or injection that can make us bigger, faster and stronger.

Anabolic steroids—testosterone or testosterone-like drugs that can produce a significant increase in muscular size in both males and females—are powerfully seductive. And like the voices of the Sirens,

they can blind people to their danger.

Adolescents, in particular, are susceptible to the temptation, able to tune out warnings of serious side effects.

## **Steroids are riding a wave of increased drug use among young adults**

The appeal of steroids doesn't limit itself to athletes. Some teenagers turn to them simply because they want to look bigger and stronger. A 1986 survey of 200 high school users cited appearance as a primary reason for taking steroids for nearly half (45 percent) of

them. Young people who use steroids can be found in just about any grouping you care to pick—rich and poor, inner city and suburbs, black and white.

### **Adolescent Steroid Use is Rising**

Steroids are riding a wave of increased drug use among young adults, and public health agencies are concerned with what surveys are telling them. While use declined slightly and then leveled off in the 1990s, more recent surveys have shown some increase in use of non-medical steroids by adolescents.

The National Drug Intelligence Center reports that surveys also show a more tolerant attitude toward steroid use among twelfth graders, which the center describes as "a possible indication of increased steroid use in the near term."

by Mark Flint

# of Performance Enhancing Drugs



## The Price of Performance

The upside of physical enhancement from steroid use comes with a price. Steroids can cause severe physical change, including cancer and heart disease. Emotional problems associated with steroid use include dramatic mood swings, depression, paranoid jealousy, extreme irritability, delusions, and impaired judgment.

In addition, those who inject steroids expose themselves to risks of needle-borne diseases including HIV, hepatitis B and C, and other blood-borne viruses.

## Science Provides an Alternative

Tucson osteopathic physician Ty Endean, of the Sports Institute of Tucson, is a team physician for several high schools and the Arizona Heat professional softball team. He is on the medical staff for the United States rugby team, and was team physician for the team in the 2004 rugby World Cup. He has also worked with the Oakland Raiders, San

Jose Sharks hockey team, and the San Jose SaberCats arena football team.

"I have not seen indications of drug use in the athletes I deal with," he says. "I have seen drug use in the gym, and in the community."

There are ways to become bigger, faster and stronger without drugs and their dangerous side effects, he adds.

"A lot of the improvement has more to do with better training and nutrition," Endean says. "Now it's a science, especially in college programs. Training now includes telling kids when to eat, what to eat and how much to eat."

Professional athletes, who can afford the

luxury of more intense care, take it even further, Endean says, maximizing utilization of nutrition and supplementation.

"They send off urine and blood for analysis," he notes. "The science of legal supplementation is pretty remarkable."

## Price Helps Restrict Spread

Cost is another limiting factor in illegal steroid use, Endean says.

"There were players spending \$100,000 a year for legal and illegal drugs and medical consultation when I was at the Raiders," he notes. "You can't do that as a high school kid, or even a college kid unless you have a rich dad."

Steroids can be found on the Internet and in Mexico, but there's no guarantee what's in these illegal purchases, and no recourse for victims of fraud or, worse, medical problems resulting from taking drugs that may be tainted.



## There's a win at all cost attitude in sports

### Human Growth Hormone and Performance

Another drug used to enhance performance is Human Growth Hormone (HGH), a substance secreted by the pituitary gland to promote growth during childhood and adolescence. Boosting HGH blood levels has been promoted as a medical fountain of youth—purveyors claim that it can reduce body fat, build muscle, improve sexual performance, sleep quality, vision and memory. They advertise that it will restore hair growth and color, strengthen the immune system, normalize blood sugar, increase energy—in short, restore youth and prevent aging.

As with most claims of this type, research does not support them. While research on the effects of long-term use of synthetic HGH is limited, people who naturally produce too much of the hormone or have received medical treatment for growth failure often develop abnormal hearts, bones, and nerves, and are likely to suffer from osteoporosis, heart failure, and other diseases. Researchers suspect that long-term use of supplemental HGH could have similar consequences.

HGH is popular with athletes because there is no test for it, so unless they are caught

in the act of injecting it, athletes can use HGH without fear of detection. The cost—about \$1,000 for a four-week cycle—is a limiting factor in its use.

### A Body To Die For?

The dream of success, of being the best in the world and attaining the wealth and recognition of being a professional athlete, is a powerful drug in itself.

"Each year of the Olympics they take a poll, asking athletes that if there was a drug that would get them a gold medal, would they be willing to take it even if it would shorten their

lives by 10 years," Endean says. "The answer continues to be 'yes.' There's a win at all cost attitude in sports, and I don't think that's changing; it's the nature of humans."

For a teenager wanting to be admired for physical attributes, a minor league baseball player trying to make it into "The Show" or a middle-aged man afraid of growing old, drugs that can make you bigger, faster and stronger have a strong appeal. Abuse of these drugs has led many to a fate similar to that of those mythical Greek sailors who succumbed to the song of the Sirens. ❖

## The science of legal supplementation is pretty remarkable

*Steroid abuse is not limited to athletes, nor is it unique to young people. Middle-aged men, girls and women and people from all walks of life may be tempted by the promise of a magic potion that will make them look and perform better.*

### How can you determine if someone you know is using steroids?

"Awareness of the signs is the first step," said Ty Endean, DO, of the Sports Institute of Tucson. "Mood changes and a significant increase in size and strength in a short amount of time will be the first symptoms to appear. Young people won't show the other side effects because it can take years of use for them to manifest themselves."

### Steroid abuse symptoms

In the male reproductive system, steroids can cause testicular atrophy (decreased size and function), lowered sperm count, sterility (reversible), painful, prolonged erection, prostate enlargement and frequent or continuing erections. The entire testosterone producing function may remain shut down after steroid use is discontinued, possibly leading to a permanent imbalance of the hormone.

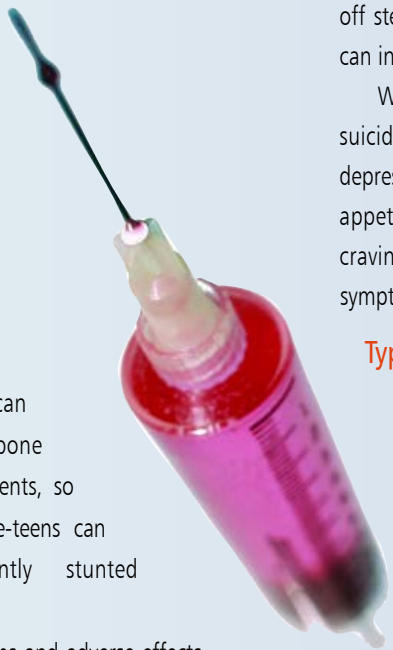
Permanent effects on the female reproductive system include enlargement of the clitoris, increased body hair and deepening of the voice. Effects that go away when use is discontinued include uterine atrophy, irregularity or cessation of menstrual cycle, shrinkage of breast size and "masculinization" of female fetuses in pregnant women.



Steroid use also affects the heart and circulatory system, causing high blood pressure and decrease in high-density lipoproteins (HDLs) in the blood. (HDLs help rid the body of cholesterol.) In some cases, production of low-density lipoproteins (LDLs), which promote the production of cholesterol, increases. Clogged arteries, caused by excess cholesterol, can result in strokes or heart attacks. Deaths have been reported in both young and older athletes.

Steroid use can shut down bone growth in adolescents, so teenagers and pre-teens can suffer permanently stunted growth.

Other symptoms and adverse effects include headaches, hair loss, puffy cheeks, sore throat, unpleasant breath odor, sore tongue, increased breast tissue on male pectorals, decrease of breast size in females, increased oiliness and acne on skin, flushed or yellowish skin, bruising, even with small injuries, increased perspiration, pronounced stretch marks, facial and chest hair on females, rash or hives. Steroid abuse also can result in changes in bowel and urinary habits, kidney stones, gallstones, liver tumors, joint stiffness, pain, swelling and increased chance of injury to muscles, tendons and ligaments.



## Psychological Effects

Psychological changes can be the most drastic of the effects of steroid abuse. These include feelings of irritability and aggression leading to a "hair trigger" temperament and feelings of anger and hostility. Anxiety can disturb sleep patterns, and users may experience paranoia.

Depression is another side effect of anabolic steroid use, usually occurring after the user goes off steroids and the body decreases in size. This can induce users to take steroids again.

Withdrawal can also lead to thoughts of suicide, and other symptoms of severe depression, including insomnia, loss of energy or appetite, sweating, nausea, headaches and craving for anabolic steroids. Withdrawal symptoms will last one to three weeks.

## Types of Steroids

Anabolic steroids are either taken by mouth or injected into a muscle. Oral steroids come in the form of tablets or capsules, and are reportedly more toxic to the liver. They may be taken in conjunction with injectable forms.

Injectable steroids are known as "oils," which are long-acting, or "waters," short-acting forms. Waters work much faster and are eliminated much more quickly. Oral steroids are highly potent and are excreted fairly rapidly from the body (usually within weeks) because they have short metabolic half-lives. Oral steroids are the first choice for athletes who want rapid results and decreased opportunity for detection in drug tests. Oral steroids are also the most toxic, and have more side effects.

For more information on steroid abuse, the National Institute on Drug Abuse—Steroid Abuse website, [steroidabuse.org](http://steroidabuse.org), is a good resource.

### Restoring Vision



A derivative of a drug that halts blood vessel growth in tumors may also reverse the vision loss caused by macular degeneration—at least for the "wet" form of the disease, in which leaky blood vessels are to blame. The new drug, ranibizumab, was approved by the FDA last summer.

### Stabilizing Sugar



Researchers have long hoped that transplanting insulin-producing islet cells into type one diabetics would eliminate their need for insulin injections. Only a handful of transplant patients have actually achieved insulin independence, but there may be another, more important benefit: two-thirds of those patients stopped experiencing severe drops in blood sugar levels, according to a study in the *New England Journal of Medicine*.

### Plastic Sensitivity



DEHP, a compound used to soften the plastic in everything from toys to medical supplies, may increase our sensitivity to dust mite allergens, according to research conducted with mice and published in *Environmental Health Perspectives*.

# MUNCHAUSEN SYNDROME BY PROXY

*Of all that we hold sacred,  
the bond between mother  
and child is perhaps the most  
deeply embedded in human  
culture. "Mother is the name  
for God in the lips and hearts  
of little children," was how  
William Makepeace Thackeray  
described the relationship.*

*A mother who would  
deliberately harm her children  
goes against the very essence of  
motherhood, the biological  
imperative to protect  
her young.*

*by Mark Flint*

suffering from any of the fabricated symptoms. This history causes the physician to perform unnecessary diagnostic procedures that do not result in any specific diagnosis.

Munchausen's Syndrome, the disease from which MSBP gets its name, is a psychiatric disorder, a form of self-abuse in which individuals fabricate histories of illness, often making themselves ill to be more believable. These fabrications lead to complex medical investigations, hospitalizations and, at times, needless surgery.

## Whimsical Name for a Serious Disorder

Munchausen's Syndrome was reported in 1951 by Richard Asher, a physician who named it for Baron Hieronymous Karl Fredrich von Munchausen, an 18th century German and mercenary officer in the Russian cavalry. Baron von Munchausen's tales of his exploits grew more and more expansive, eventually becoming outlandish and all but impossible to believe.

MSBP has also been called Polle syndrome, named after Baron von Munchausen's only

child. In 2002, the American Professional Society on the Abuse of Children (APSAC) suggested a new name, Pediatric Condition Falsification (PCF), but MSBP, with its colorful historic reference, remains the more common appellation.

"It's a very bad form of child abuse because it puts the child into danger," notes Tucson psychiatrist Bob McCabe, DO. Pediatricians are accustomed to trusting parents, and might at least initially be taken in by a parent with MSBP.

"Some doctors may overreact and treat, even perform surgery," he said. "That's a danger."

McCabe has not come across MSBP in his practice, and says it is relatively rare.

"MSBP is one form of fictitious disorders in which people feign illness for various reasons," he says. "Fictitious disorders account for fewer than one in 1,000 psychiatric cases."

## MSBP Defined

The Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV)

Drugs, alcohol and the cycle of abuse are the most common factors in child abuse. Mental illness is another. One such illness, which researchers now believe is more common than previously thought, is popularly known as Munchausen Syndrome by Proxy, or MSBP.

Englishman Roy Meadow first published a report of this then newly-discovered form of child abuse in 1977. MSBP refers to an adult, usually the mother, presenting a false history to the physician regarding a child who is not





*MSBP is "one of the most harmful forms of child abuse.*

*Even the most experienced pediatricians often miss evident clues left by these mothers."*

included a definition for fictitious disorder by proxy in 1995. This is now the accepted psychiatric category for MSBP, and the DSM-IV definition includes the following:

"1. Intentional production or feigning of physical or psychological signs or symptoms in another person who is under the individual's care.

"2. The motivation for the perpetrator's behavior is to assume the sick role by proxy.

"3. External incentives for the behavior, such as economic gain, avoiding legal responsibility, or improving physical well-being, are absent."

### Diagnosis can be Elusive

McCabe adds that family practitioners and Emergency Room doctors are most likely to encounter MSBP, "and if they are not

trained to look for it, they may miss it."

Psychologist Kathryn Coffman, PhD, who works with Childhelp USA at St. Joseph's Hospital in Phoenix, agrees that medical practitioners can overlook MSBP.

"Most cases are probably never detected," she says. "It's probably more frequent than people know."

Coffman encounters "a couple of cases a year here," she says, adding that MSBP can be difficult to prove.

The Pediatric Bulletin describes MSBP as "one of the most harmful forms of child abuse"

that is perplexing because it "involves an apparent deeply caring mother who repeatedly fabricates symptoms or provokes actual illnesses in her helpless infant or child.

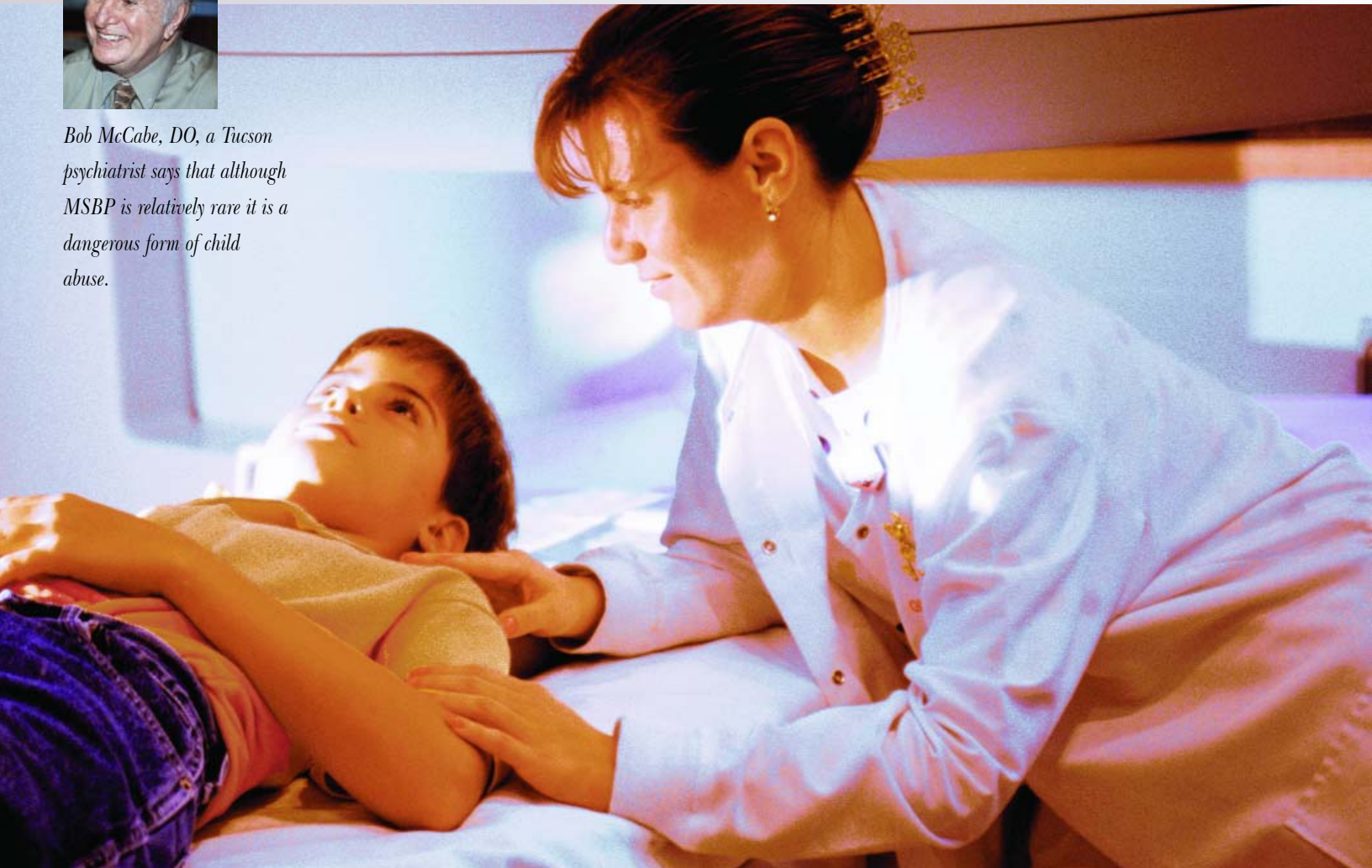
"Maybe the most important aspect of this syndrome is the immense ability of the mother to fool doctors and the susceptibility of physicians to her manipulations," reports the Pediatric Bulletin. "Even the most experienced pediatricians often miss evident clues left by these mothers."

"The way they typically come to attention is a history of unexplained chronic or recurrent illness, and lots of medical attention," Coffman says. "The child may or may not have had hospitalizations or surgeries."

Coffman has seen cases of mothers giving their children ipecac to induce recurrent vomiting. In other cases, a child's urine



*Bob McCabe, DO, a Tucson psychiatrist says that although MSBP is relatively rare it is a dangerous form of child abuse.*



# WARNING SIGNS OF MSBP

*Children most at risk for MSBP abuse are young, 15 months to 6 years old. Symptoms may be baffling, and often the child will have been taken to numerous healthcare providers before MSBP is discovered. In most—about 98 percent—of the cases, the biological mother is responsible for the abuse.*

Warning signs of MSBP include the following:

- Illness is multi-systemic, prolonged, unusual, or rare.
- Symptoms are inappropriate or incongruent.
- The child has multiple allergies.
- Symptoms disappear when the parent or caretaker is absent.
- One parent, usually the father, is absent during hospitalization.
- A history of sudden infant death syndrome in siblings may be present.
- The parent is overly attached to the child.
- The child has poor tolerance of treatment (rash, frequent vomiting, problems with intravenous lines).
- The parent encourages medical staff to perform numerous tests/studies.
- The general health of the child is inconsistent with results of laboratory tests.
- The parent shows inordinate concern for feelings of the medical staff.
- Seizure activity is unresponsive to anticonvulsants and is witnessed only by the parent.



sample with blood in it will, upon testing, be determined to have had the mother's blood added.

"One of the more common manifestations is repeated suffocation and heroic rescues by the parent," she says.

Other cases of MSBP abuse have included bleeding from Coumadin poisoning; phenolphthalein poisoning (phenolphthalein is an organic compound widely employed as an acid-base indicator and as a laxative, and is a suspected carcinogen); use of colored substances to simulate bleeding; various forms of poisoning; depression of the central nervous system from drugs such as insulin, chloral hydrate, barbiturates, aspirin, tricyclic antidepressants, acetaminophen and

*"Most cases are probably never detected. It's probably more frequent than people know."*

hydrocarbons; fever—either falsified or induced; rash from drug poisoning, scratching, caustics, or skin painting; hypoglycemia from insulin or hypoglycemic agents; and blood in the urine or guaiac positive stools produced by trauma to the urethra or anorectal area.

In a 1977 research project entitled "Covert video recordings of life-threatening child abuse: lessons for child protection," authors David P. Southall, Michael C. B. Plunkett, Martin W. Banks, Adrian F. Falkov, and Martin P. Samuels conducted covert video surveillance

of 39 hospitalized children who were believed to be at risk for abuse by induced illness. The hidden cameras revealed severe abuse by people who appeared to be normal, caring parents.

"A proportion of serious child abuse is inflicted by severely disturbed, deceitful but plausible parents," the researchers wrote in their conclusion. "This abuse may be difficult to recognize, life-threatening, and associated with extreme degrees of physical and mental harm that are difficult to imagine."

As yet, no research has quantified the occurrence of MSBP. Even assuming that many cases may be undiagnosed, it still appears to be a relatively rare disorder. ❖



## **PRACTICING TUCSON OSTEOPATHIC PHYSICIANS BY SPECIALTY**

Information obtained from:

*AOA Yearbook and Directory of Osteopathic Physicians  
and the Arizona Board of Osteopathic Examiners in  
Medicine and Surgery—Directory of Licensed  
Osteopathic Physicians*

### **ACUPUNCTURE**

Chiu-An Chang, DO \*

### **ADDICTIVE DISEASES**

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Arlene M. Kellman, DO \*  
Bethann Mahoney, DO \*  
Bernice E. Roberts, DO \*

### **ADOLESCENT & YOUNG ADULT**

William C. Inboden, DO \*

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Gary K. Brandon, DO \*

### **ANESTHESIOLOGY**

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Aaron Hammond, DO  
Mark Lathen, DO  
Achit B. Patel, DO  
Elson L. Revak, DO  
Donald G. Sansom, DO  
Gary G. Willardson, DO

### **BARIATRICS**

Mitchell E. Edelstein, DO

### **CARDIOLOGY**

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Kathryn L. Bates, DO \*  
Phillip J. Dattilo, DO \*  
Neil S. Freund, DO \*  
Kirk M. Gavlick, DO \*  
Tedd M. Goldfinger, DO \*

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### **DERMATOLOGY**

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Charles R. Ganzer, DO \*  
Donald Kane, DO \*  
Lori E. Levine, DO \*  
Peter P. Michalak, DO \*  
A-Rahman Qabazard, DO  
Louis C. Steininger, DO  
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Kimberly Carlson, DO \*  
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Melissa M. Heineman, DO  
Roberta Hindenlang, DO \*  
William C. Inboden, DO \*  
Brian Jenkins, DO  
David H. Kahan, DO \*  
Donald L. Kwasman, DO \*  
Kristin Lorenz, DO \*  
David Los, DO  
Paul K. Lund, Jr., DO  
John F. Manfredonia, DO \*  
Christopher L. Marsh, DO \*  
Cdr. Alexander R. Mazerski, DO \*  
James A. McCartan, DO \*  
Julie McCartan, DO  
Patricia Merrill, DO  
Peter P. Michalak, DO \*  
Robert C. Miller, DO \*  
Victoria E. Murrain, DO  
David L. Musicant, DO  
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Jocelyn Hendricks, DO \*  
James A. McCartan, DO \*

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David W. Buechel, DO  
David L. Capaccio, DO  
Lisa Castellano, DO  
Michael J. Connolly, Jr., DO \*  
Phillip J. Dattilo, DO \*  
Neil S. Freund, DO \*  
Kirk M. Gavlick, DO \*  
Tedd M. Goldfinger, DO \*  
George Haloftis, DO \*  
Jocelyn Hendricks, DO \*  
Jerry H. Hutchinson, Jr., DO  
Nadin Kedia, DO  
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Douglas N. Kirkpatrick, DO \*  
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Michael P. Neiderer, DO  
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Sean M. O'Brien, DO \*  
Michael A. Pack, DO  
Vinus K. Patel, DO  
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Deborah Jane Power, DO \*  
Darush Rahmani, DO \*  
Aspen I. Ralph, DO \*  
Franz P. Rischard, DO \*  
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David M. Schwartz, DO  
T. Bryson Struse III, DO \*  
Bridget T. Walsh, DO \*

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Sandra M. Dostert, DO \*  
Cdr. Alexander R. Mazerski, DO \*  
Bernice E. Roberts, DO \*



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Lynn E. Edde, DO

## NEPHROLOGY

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Kimberly Y. Mudge, DO  
Jeffery A. Palen, DO

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Claudia R. Coplein, DO  
J. Ted Crawford, DO \*  
Michael D. Goodman, DO  
Carol M. Hutchinson, DO \*  
John W. McCracken, Jr., DO \*  
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Joseph M. Small, DO \*

## ORTHOPEDIC SURGERY

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Ty Endean, DO  
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James L. Hess, DO  
Geoffrey S. Landis, DO

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Kimberly Carlson, DO \*  
Chiu-An Chang, DO \*  
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## UROLOGICAL SURGERY

Kenneth M. Belkoff, DO

*\*Indicates that the physician is listed more than once under different specialties.*

The mission of the Tucson Osteopathic Medical Foundation shall be the achievement of excellence, innovation and caring in advancing community health care issues, enhancing medical education and developing sustainable support of projects which impact the lives of many today and in the future.

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*Bridget Walsh, DO, specializes in Rheumatology at Catalina Pointe Arthritis & Rheumatology Specialists, PC.*

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