



The Doctor is in

a weekly column by
Dr. Jim Ferguson

Hepatology

I used to like liver and onions; at least until I worked at an inner city hospital during my internal medicine training. I've seen some bad livers in my day, and I can no longer stomach this traditional English dish. That being said, the English eat some strange things and aren't noted for culinary gifts.

The liver is a large internal organ which lies under the right lower rib cage. It is involved in a host of metabolic functions: the manufacture of proteins which hold water in our blood vessels limiting edema; the production of coagulation proteins that prevents abnormal bleeding as in hemophilia; the production of lipids and their carrier proteins which allow fats to circulate in our water-based blood stream; the liver also helps regulate blood sugar during fasting; and the liver aids in the removal of toxins and

metabolizes (breaks down) medications. Obviously, liver dysfunction can result in serious medical issues.

Liver disease can occur rapidly with viral infection or from poisoning, such as occurs with acetaminophen (Tylenol) overdose. Additionally, there are increasing reports of liver damage from over-the-counter nutritional supplements and herbal preparations.

Liver disease is often silent until late in the course of the illness, perhaps because ninety percent of the liver must be destroyed before severe symptoms arise. The liver has a marked ability to regenerate itself and repair damage. This regeneration even allows healthy people to donate a part of their own liver to someone with liver failure.

Chronic liver disease is often discovered by

abnormal liver function tests found on blood panels. Any condition that irritates the liver cells or impairs the circulation of bile fluids within the liver can cause an excessive release of liver cell enzymes which are registered in blood samples. Enzymes are proteins that facilitate chemical reactions, and the human body is a chemical factory dependent on these chemical reactions. There are measurable levels of enzymes in everyone's blood stream. Disease is suggested by elevated liver enzyme levels.

The word cirrhosis often confuses people. This term simply means scarring of the liver. Cirrhosis does not suggest a cause for the scarring, and is not a synonym for alcohol abuse. Unfortunately, there remains a social stigma with the term cirrhosis. Lots of conditions can lead to a scarred liver including chronic viral infections as well as alcoholism.

Similarly, the term hepatitis is often misunderstood. Hepatitis is a nonspecific term for inflammation of the liver. The suffix -itis means inflammation of any area of the body. When coupled with the Greek term for liver (hepar-) you get the nonspecific descriptive term, hepatitis. Actually, you can combine -itis with other areas of the body

yielding, for example, derma-itis (inflamed skin), arthron-itis (inflamed joints), etc.

When the American food and water supply was less secure, acute infectious hepatitis from the hepatitis A virus was much more common. Now the greatest risk for this infection is foreign travel with exposure to unsafe food and water since the virus is shed in feces. Fortunately, this virus rarely causes death and does not lead to chronic hepatitis or scarring. Additionally, there is an effective vaccination for those at higher risk of hepatitis A.

Greater problems occur with type B and C hepatitis viruses which are spread through blood and body fluid contact. These agents can cause acute liver inflammation, but can also lead to chronic infection and cause scarring of the liver. There is an effective vaccination for hepatitis B virus, but unfortunately not one for hepatitis C.

There are more unusual alphabet viruses that can inflame the liver, designated as hepatitis D and E. Even the herpes family of viruses (fever blister viruses, chicken pox and shingles viruses, and mononucleosis/cytomegalovirus agents) can cause liver inflammation. Additionally,

blocked bile ducts from gallstones or cancer lead to liver enzyme elevation. In some cases of abnormal liver enzymes, doctors check for congenital metabolic conditions or lupus-like syndromes to explain the hepatitis.

There is no treatment for hepatitis A infection, and the treatment of chronic infection with hepatitis B and C viruses remains problematic. A recent paper in the NEJM (New England Journal of Medicine) described exciting new therapy options for hepatitis C infection even in the viral subtype that has historically been very resistant to treatment.

There is another major cause of liver disease that is increasing because America is overweight. Studies show that two-thirds of us are either overweight or obese. The latter is a medical term for those whose BMI (body mass index) is 30 or greater (normal BMI is 20-25). Morbid obesity refers to those at least 100 pounds over their ideal body weight or who have a BMI of 40 or greater. The BMI better defines weight and body fat than just our scales. You can calculate your body mass index:

BMI = weight in Kg / height in meters² OR
 BMI = weight in lbs / height in inches²

Obesity is important not only for its association with diabetes and vascular disease, but obesity also causes fatty deposits in the liver. In fact, the medical condition NASH (non alcoholic steatohepatitis) has replaced chronic alcohol and viral infection as the most common cause of an inflamed or scarred (cirrhotic) liver. NASH is defined as the accumulation of fat (steato-) in the liver producing inflammation (hepatitis) which can lead to cirrhosis.

Acute hepatitis occurs suddenly and acts like the "flu" and often causes jaundice (yellowing of the skin and eyes). Chronic liver disease is more subtle with symptoms of fatigue or personality changes. Often abnormalities of white blood cells and platelets occur as a result of altered circulation in a scarred liver.

This essay may be too techy for some, and I admit the study of liver disease (hepatology) is not my passion. But, there are some simple take home points: be careful in your dating and avoid the second slice of pie.

Do you have a question for Dr. Ferguson? Please e-mail him at fergusonj@knoxfocus.com.

Teaching Active, Healthy Lifestyle Is Focus of Emerald Summer Camp

Building an active, healthy lifestyle is the focus of a week-long series of day camps for about 225 urban Knoxville kids June 16-20. Growing herbs and tomatoes, riding bikes on urban greenways, preparing foods like fresh fruit salsa with cinnamon pita chips, and catching fish from a sun-baked dock are all on tap.

The occasion is Emerald Youth Foundation's annual Emerald Youth Camp Week, sponsored by Variety of Eastern Tennessee. Elementary and middle school aged kids will each choose one themed day camp from 11 camp offerings like outdoor adventures, cooking, gardening, biking and sports, to take place at venues across the Knoxville area.

The participating youth start each day at Emerald's

gymnasium and board a bus to venues that range from Clinton (for Junior Achievement Biz-Town), Lenoir City Park (for fishing and other outdoor adventures), New Harvest Park (gardening), Safety City (biking) and many local churches (cooking, art, games, sports and more).

Highlights will include: making a bucket garden that children can take home and keep; harvesting vegetables that are already growing; learning sports like soccer and volleyball from local experts; learning to run a business; playing outdoor games; having a taste testing of exotic fruits, and having a bug and nature scavenger hunt.

Camp Week will conclude with a daylong trip to the Knoxville Zoo, an always-popular

Continued on page 2



Justus McMillan collected weeds and bugs at New Harvest Park during last summer's Emerald Youth Camp Week

Get the facts about surgical weight loss.



Featured Speakers
 Stephen Boyce, M.D.
 K. Robert Williams, M.D.

Juggling the issues that can come from being overweight? Explore the Tennova Center for Surgical Weight Loss, accredited by the American College of Surgeons Bariatric Surgery Center Network. Meet our experts in person and ask questions to learn if you're a candidate for weight loss surgery. We can answer your insurance questions, too.

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Patient results may vary. Consult your physician about the benefits and risks of weight loss surgery.



Independent members of the medical staff

Teaching Active, Healthy Lifestyle Is Focus of Emerald Summer Camp

Cont. from page 1

event that includes lunch and plenty of time with the animals.

EY Camp Week tackles an ongoing problem in American inner cities: unhealthy lifestyles.

Today about 1 in 3 American kids is overweight or obese, according to the American Heart Association's Alliance for a Healthier Generation. Those children are more likely to have obesity, diabetes, asthma and heart failure as an adult. Too much TV and screen time and too little physical activity make things worse.

In urban Knoxville, according to a recent EYF study, about 40 percent of urban Knoxville youth are overweight and obese. A majority of students at six urban high schools were found not to be involved in health-promoting activities like being on a sports team, getting regular exercise or purposefully eating a healthy diet.

Good times cooked up by Emerald and its partners-in-fun aim to counter that. Each camp is tailored to be fun but also promote healthy activity and teach lifestyle skills. For example, Garden Camp will teach children

to raise vegetables and herbs. Games Camp will teach team building and a range of outdoor games. Bike Camp will teach youth safety rules and how to navigate city greenways on a bike.

"Being healthy makes life a lot more fun. We hope the kids have a great time during camp, and realize how much they can benefit from a healthy lifestyle," said Emerald Youth's Kent Stanger.

Kindall Aaron, coordinator of the Knoxville Area Coalition on Childhood Obesity, and a collaborator in providing the gardening and biking camps, said education of parents and children is key to adopting healthy lifestyles.

"If parents are educated, then their health and their children's health become top priorities," she said.

Partners in presenting Emerald Youth Camp Week also include Junior Achievement of East Tennessee, East Tennessee Children's Hospital, City of Knoxville Department of Parks and Recreation, UT Kinesiology Department, Knox County Department of Parks and Recreation, and Green Mountain Coffee.

Learn more about Emerald Youth at www.emerald-youth.org.

A Day Away



By Mike Steely

If you are lucky enough to get tickets to the Great Smoky Mountain National Park's June Synchronous Fireflies event you may find several surprises. Like most things in the Great Smoky Mountains the waiting lines are long, the expectations high, but the price is right. If you can get tickets!

My wife and I were lucky and called the park early. We drove over to the Sugarland Visitors Center on time, ate some sandwiches in the car, grabbed our flashlights, a blanket, and our cameras. We might as well left the cameras in the car and I'll explain why later.

We walked up to where the trolleys were parked to find a line of visitors stretching from one end of boarding area to the other and even more people still arriving.

The boarding was from about 7 p.m. until 8:30 and we got on the fifth trolley. The ride was brief and noisy as the children on the bus were excited and the adults were also. We rode east toward Townsend and then up to the old Elkmont logging town. There the trolley stopped and the rangers were waiting with information, a sheet about the fireflies (or lightning bugs if you prefer) and the crowd began walking up the trail. The staff hands out red plastic to cover your flashlights so you won't disturb the fireflies.

We had expected a large field where everyone would assemble and watch the lighting show but the show was going to take place along the path. Visitors sat up chairs or blankets here



Waiting for the fireflies to begin, some come prepared with chairs and food. You need a camera with a good five-second long exposure to capture the display at Elkmont in the Smokies. (Photo by the Steelys)

and there, most facing the forest, and waited.

Volunteers and rangers walked the long trail, talking with visitors who were impatient for the little creatures to start their show, and explaining that at about 9:30 sharp the display would begin. And so it did.

First one then two, than a burst of flickering tail lights from the insects. The hundreds, if not thousands, of little lights began flashing for about five seconds then went dark. About five seconds later the lights began again. The display continued for a couple of hours or more, five seconds on and five seconds off, with the fireflies forming a flashing blanket up and down the path.

When it got totally dark the display was even more visible, in the forest and along the trail. Those fireflies along the trail were in the air and on the plants

on both sides, so you could walk down the lighted pathway like a runway. It's much like a fireworks display without the explosive noise and smoke.

If you plan to take photos no flash is allowed and hopefully you have a camera with a time exposure. Use a tripod and open the lens for about 5 seconds. My wife and I did not, so the best photos we got were of the visitors waiting for the show.

The male firefly flashes when flying, the female while stationary and in response. During their brief 21-day life the insect does not eat, only mates. The female then goes back into the ground, lays her eggs, and dies. The synchronous fireflies are the only species in America that have that flashing pattern.

The event only takes place in early June at the park and it's hard to get tickets. You can go online when

the event is announced and try to get tickets. The only cost is \$1 per person for the trolley ride. If you get to the viewing area before dark you'll notice the shuttle passes by the Elkmont campground and several of the campers there simply walked up to the event. Camping there might be the best way to make sure you see the firefly event, if you can get reservations.

Walking the trail after dark you'll probably need your red-covered flashlight because there were people standing, setting and lying along the path and it's easy to bump into them or step on them. The path is literally lined with people in the darkness more interested in the light show than who's walking by them.

By the time you read this the firefly show will be over but you can check it out at www.smokiesinformation.org.

Church Happenings

First United Methodist Church

Come worship Sunday morning with Focus columnist Dr. Ferguson and Becky "down by the river!"

During the summer, First United Methodist Church has worship service at the pavilion over looking the Tennessee River and UT Farms. Riverside service is at 8:30 and the traditional service in the sanctuary is at 10:45.

Come and see why First Church at 3316 Kingston Pike, (just east of Cherokee Blvd.) is where the difference is worth the distance!

Seymour United Methodist Church

The weekly fellowship meals on Wednesdays have been discontinued throughout the summer months, and will resume on August 20.

The Older Adult Council (ages 55 and above) will hold its annual "Movie

Night & Ice Cream Social" on Friday, June 20, at 6:30 p.m. in the Fellowship Hall. Scheduled movie is "Harry and the Hendersons." Contact Harry Switzer for details and signups.

The "Groundskeepers" fellowship and outdoor work group will convene on Saturday, June 21, at 9 p.m. for some much-needed gardening and cleanup work. Contact person is Dave Manners.

Next Sunday, June 22, the Children's Council meets at 3 p.m., followed at 4 p.m. by a meeting of the Mission Outreach Council.

For further information, please call the church office at 573-9711. The website is www.seymourumc.org.

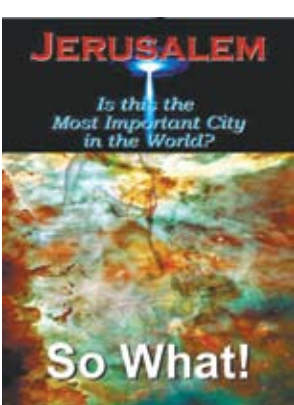
Seymour UMC is conveniently located at the corner of Chapman Hwy and Simmons Rd., just one block north of the Boyd's Creek and Rt. 411 intersection with Chapman Hwy.

BookStreetpub.com announces the release of a revealing book on Jerusalem. This book theorizes that Jerusalem is enigmatic and mystical but not for the reasons for which everyone reaches. Suzette Solano's book gracefully strings along facts

and evidence elucidating this city's controversial status. The text engages the booklover to recognize how existing physical data truly back up religious scriptures. Gradually, readers become aware to the scriptures'

accuracy such that lingering thoughts of what else is to come can hardly be held back. The story evolves into a surprising ending where everyone realizes this city's importance is nothing short of spectacular.

For over 8 years the author has been working on the subject. Solano wanted to know why this city is overlooked; why the world is discouraged at ever reaching peace. However, she invites the reader to take a second look at Jerusalem. She pondered: "What if you'd found that the biggest treasure on earth is hidden in plain sight? Would you tell anyone?" The author's research captivates all into a world of ancient history, swiftly and delightfully culminating in modern



times. Through this book the journey to find what is missing about Jerusalem's story is seamless and exciting. The world's audience needs to know why they should care about Jerusalem. The printed book is available at all major retailers including Barnes & Noble. Online at: www.bn.com, Amazon.com in printed and electronic forms as well as in Createspace.com.

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