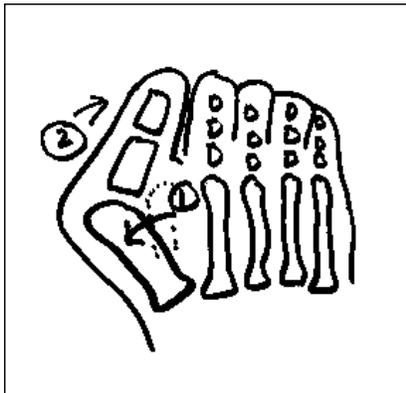
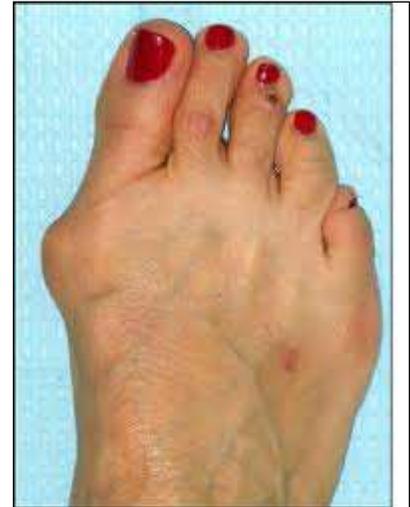


# BUNIONS

## What is a bunion?

A bunion – called hallux valgus in medical speak – is a bony deformity of the first metatarsophalangeal joint – which is the joint where the big toe meets the foot.

In a bunion two things happen at the same time. First, the first and second metatarsal bones angle away from each other much like your first two fingers when you make a "Victory sign." (The metatarsal bones are the long ones behind the toes.) The second component involves the big toe leaning toward the second toe. At first the second toe acts as a buttress holding the big toe back (as is happening in the photograph). Often, however, the second toe gives up and allows the big toe to creep under and lift it up. This *crossover deformity* is not a good sign for bunions.



If a bunion gets surgically corrected both the first metatarsal position (1 in the diagram to the left) and the big toe position (2) need to be corrected. This almost always involves making a surgical cut, or fracture, in the metatarsal bone. This is what we mean by the phrase **realignment of the bones**.

## What causes bunions?

Most bunions are caused by an inherited foot type that leaves the foot a little bit unstable. Bunions develop after 20-30-40 or more years of fitting them into shoes and walking on unforgiving surfaces. Other factors include ligament flexibility, flatness of the feet, foot shape and things as esoteric as whether the metatarsal head is more flat or round than normal. In non-shoe wearing populations it is estimated that about 3-8% of adult women develop bunions. In shoe wearing populations the number is much higher, perhaps 10-20% of adult women. The difference is, of course, the shoes. Some recent studies indicate that up to 90% of adult American women wear shoes that are smaller than their feet.



These feet belong to a 12 year old girl. You might ask why two almost perfect little feet are doing in a section on bunions. Well, these are actually early (juvenile) bunions. If you look very closely you might see some findings commonly associated with bunions. There are the slightest of prominences of the typical bunions on the inside of the feet. Also note that the big toes are deviated a little towards the lesser toes (called *hallux valgus*). Finally note that the nails on the big toes no longer point

straight up but are rotated slightly so that the top of the toe points toward the center of the body. These are early (juvenile) bunions.

All bunions, even these juvenile bunions, may stay the same size for a long time or they might (and usually do) get bigger but

they **will never get smaller.**

There are no appliances or pads or creams that make them smaller. They often get bigger – especially when the tendons going to the big toe slip to the side of the joint. They can get so big that the likelihood for a perfect correction diminishes. Bunions should not be ignored.

### ***Could my bunions be prevented?***

Simply put, probably not. I have a master's degree from **UCLA** in public health – the science of prevention. There I learned how hard it is to *prove* prevention. You never know what would have happened if you did not do the action designed to prevent something - if that something never occurred. Let me apply this to bunions. If you can correctly identify the cause of a bunion and can do something to correct or stop the cause, you might be able to prevent a bunion.

Here is an example. Shannon is a teenager I saw recently with flexible flat feet and a family history of bunions. She will probably also develop bunions and I can see early hints of bunion formation. The inevitability of bunions might be lessened for Shannon if her foot could be held in a correct position during the rest of her development. This is easy in principle – make an orthotic that slips in the shoes that holds the foot in a

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*I had bunions on both feet that were getting larger and more painful. It got so I could not wear any closed shoes without pain. After too many years I finally saw Dr. Zapf and I am glad I did. My bunion surgery was my very first surgery and I can report that it was much easier than I ever expected. I followed his advice to stay home and elevate my foot for three days after surgery and I had no pain of any kind. Amazing! I will be back soon for my other foot. Thanks, Dr. Zapf*

*...Judy J.*

*Westlake Village*

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corrected position. (An orthotic is a custom-made shoe insert that is worn in the shoes that holds the foot in a *correct* position.) But in practice it works only to the degree that the patient will wear the devices whenever he or she is walking. It is not going to work with Shannon. Once the first bud of spring is on the vine, she is in sandals every day until winter. Her compliance with wearing orthotics is nil. Once the foot is mature – bunion prevention is even trickier. But in a perfect world every child with a flexible flat foot, especially in a family with bunions, would have their feet protected with orthotics. I guess the Conejo Valley is not a perfect world, after all.

### What is hallux interphalangeus?



Hallux (the big toe) interphalangeus (an angle at the joint) is a condition where there is a big angle between the two bones of the big toe (like the photograph here). Look closely and you will see that there is not much of a bunion bump nor is there a big angle between the first metatarsal and the big

toe. However, there is a big angle between the two bones of the big toe. The bone by the nail is leaning towards the 2<sup>nd</sup> toe and actually touching it. This is corrected with an "Akin" bunionectomy where the bone correction is made in the toe itself. Sometimes you can have hallux interphalangeus in addition to a bunion and both can be corrected at the same time.

### Do my bunions require surgery?

Not all bunions require or demand surgery. There are many of my patients in the Conejo Valley

### A QUESTION ON JUVENILE BUNIONS:

My daughter, five years old, has bunions. The doctor said he had never seen bunions in someone so young. He referred us to an orthopedic surgeon, but her appointment is not until April! This concerns me, because her feet are growing so fast, and I'm afraid they will get even worse (her big toe is turning toward her other ones). Seven months seems awfully long to wait for a first visit, don't you think? Please let me know if I am overly concerned.

Thank-you...Michelle R.

Dear Michelle R.

It is not at all unusual to see kids with bunions. Five years old is not too young. In almost every case there are multiple issues causing the bunion to be so large at such a young age. Many times these kids are highly intoed, that is they walk with their toes pointing toward each other. Often they exhibit hyperflexibility (double-jointedness). They are frequently flat footed. The usual treatment for a 5 year old is to make an orthotic to reduce as much of the pronation (flat footedness) as possible and observe them as they grow older. Podiatrists and orthopedists usually want to wait until the child has finished growing before wanting to surgically correct the bunion. Our office offers another option for youngsters with bunions called epiphysiodesis. It means placing a stainless steel stapling across part of the growth plate of the first metatarsal bone. This causes the bunion to grow smaller during the so-called adolescent growth phase. Only a few doctors do this so don't be surprised if your doctor has never heard of it. I will be happy to send you a before and after photo of Leah who had this procedure done if you just call my office [ (818) 707-3668 ] and ask for a copy.

happily walking around with bunions. Let me tell you about Clair. She is a 79 year old tennis player belonging to the “damn club” in Westlake Village. She plays tennis three times a week for 2 or 3 hours at a time. She has large bunions, with a crossover 2<sup>nd</sup> toe, that give her *no pain at all*, even during tennis. I told her that there was no way I was going to do her bunions and I recommend that she let no one else do them, either. I told her that if I did do bunion surgeries on a 79 year old woman and she told me that she could play tennis three times a week after recovering from surgery I would consider it a marvelous success. But she is ALREADY playing three times a week. How could I improve on that, I asked her? I know I risked being thought too flip when I answered her plea that “they look bad” by saying, “well, don’t look at them.”

So, when do bunion need to be corrected, you might ask. I have three criteria:

Bunions need surgical correction in any of three circumstances:

**First**, if your bunion(s) hurt wearing the shoes you need (or want) to wear to do the things you need (or want) to do, think bunion surgery. If they only hurt in high fashion shoes that are worn seldom – I generally do not advise bunion surgery if the other two criteria are not met.

**Second**, if the angle between the first two metatarsals (remember the victory sign?) approaches 15 degrees and the angle between the toe and the foot approaches 30 degrees as measured on an x-ray, it is bunion surgery time. Above these numbers the ease and success of bunion surgery decreases. When you go for your bunion consultation you have every right to look at your x-rays and see how the angles are measured. This x-ray must be taken with you standing with the full weight on the feet to be meaningful and reproducible. If you come to me with x-rays taken from another doctor or facility I will ask if they were taken weight bearing. If they were taken while you were sitting on an x-ray table, as is done in most orthopedic and chiropractic offices and hospital radiology departments, I will need to take new ones. If you go for a bunion consult ask if your numbers are close to "15°/30°."

**Third**, if x-rays indicate that there is damage to the joint caused by the abnormal position of the joint, a bunion surgery should be considered. Damage includes loss of the cartilage space between the bones and cysts in the metatarsal head. Normally the bones on an x-ray do not look like they touch because the cartilage cushion between them is "invisible" to an x-ray. It is a bad sign if the bones appear to touch. This means a loss of cartilage and inevitable arthritis. I believe that all bunions will eventually develop arthritis and that even if we do not see it on the x-ray it is still going on behind the scenes.



**Extra Bonus Criteria.** This picture shows a foot where the big toe has moved over and under the 2nd toe. This is the so-

called crossover toe deformity. It is difficult – heretofore nearly impossible - to correct with any degree of success. If you see that your 2nd toe is starting to lift and the big toe is starting to move over, please consider having your bunions surgically corrected. It is always easier to fix a bunion than a crossover deformity.

### **What about the pain behind my 2<sup>nd</sup> toe? Or a 2<sup>nd</sup> toe dislocation?**

As a bunion gets larger the first metatarsal bone bears less weight and the second start to bear more than its fair share of weight. This is the start of pain in the ball of the foot called **metatarsalgia**. The pain is specifically at the site where the second toe meets the ball of the foot. This area of the foot can swell so much that it is visible to the eye and can develop quite a callus in some people.

The swelling under the head of the second metatarsal head comes from the metatarsophalangeal joint – the joint where the toe meets the foot. If this goes on long enough the second toe can left a little such that it is not touching the floor when you are standing. With a little

more time the toe elevates and allows the big toe to slide over and under the 2<sup>nd</sup> toe.

This is called a **crossover toe deformity** and is a tragic consequence of a bunion. *I caution you*



*to strongly consider a bunionectomy if there is pain behind the second toe on the ball of the foot, especially if the x-rays show that the toe is still in good alignment and can be easily or readily corrected.* The accompanying picture above shows a second toe that tried to fight back but lost. It is happily sitting on top of the big toe. Again, this is a very hard bunion to correct and could have been prevented with a more prompt bunion surgery.

### **If you examine my feet and feel that surgery can wait, then what?**

If your bunions are not particularly painful, the angle between the first and second metatarsal is 13° or less, the big toe is not resting under the second toe and there is no visible damage to the bunion joint on your x-rays, then surgery can probably be postponed. I recommend that new x-rays be taken every 6 to 24 months to watch for increases in any of the danger signs.

### **If I need a bunion surgery, who should do it?**

The only two classes of people qualified to correct a bunion surgically are orthopedic surgeons and podiatric surgeons. Either profession has people who do great bunions and those that do not. Here are some criteria you can use to choose the great ones:

**Number per year:** There are many intricacies in bunion surgery and the best results are done by people who do them week in and week out. Many surgeons only do them occasionally. Ask your surgeon (or his or her office staff) how many bunions the surgeon does each year. As a rule of thumb, you can expect a better result if your surgeon does 20 or more bunion surgeries annually. I recently "lost" a bunion patient to an HMO when her employer changed insurance plans. She was sent by her new HMO to a contracted orthopedist for her bunion surgery. She was told by this doctor that he "did bunion surgery every week." She called the three facilities where he had privileges and found that he had only done two in the last seven years! She successfully petitioned her HMO to allow her to go to a foot surgeon who really does do bunion surgeries every week.

**Hospital and Surgery Center Privileges:** Surgeons typically perform bunion surgeries in hospitals and surgery centers. Both hospitals and surgery centers have peer review committees that review surgery outcomes. Bad doctors are counseled to improve or they lose their operating privileges. If you want to find a good bunion surgeon call your local hospital or surgery center and ask for the names of a couple of surgeons who do a lot of bunion surgeries.

In our office all three doctors, Drs. Darren Payne and Steve Benson and I are on the staffs of the Thousand Oaks Surgical Hospital, Los Robles Hospital, Specialty SurgiCenter and the Los Robles SurgiCenter.

**Board Certification:** Board Certification in podiatry requires the surgeon to be in practice for a number of years and have 75 surgeries reviewed by a board of experts. This qualifies him or her to take a two-day written exam followed by a two-day oral exam. If they pass they become Board Certified. Because this process is so onerous many podiatrists in the past could not meet these conditions. These doctors have created a number of alternative boards. Despite how impressive some of the other boards sound, in podiatry there is ONLY ONE surgery board approved by the American Podiatric Medical Association which is the American Board of Podiatric Surgery (or ABPS, see [www.abps.org](http://www.abps.org)). Podiatrists certified by this board are allowed to join the American College of Foot and Ankle Surgeons ([www.acfas.org](http://www.acfas.org)) and are then allowed to proclaim that they are Fellows of the American College of Foot and Ankle Surgeons and use the initials FACFAS on their letterhead. Rest assured, Dr. Zapf, Dr. Payne and Dr. Benson have all passed the rigorous Board Certification Exam by ABPS. By being Board Certified they were invited to become Fellows in the American College of Foot and Ankle Surgeons which is why they use FACFAS after their names.

Dr. Zapf is also certified by the second officially approved Board for podiatry that is more relevant to heel pain than bunions: the American Board of Podiatric Orthopedics and Podiatric Medicine (thankfully abbreviated ABPOPPM but even that is still a mouthful). Certification by this organization (see [www.abpoppm.org](http://www.abpoppm.org)) means that the doctor has achieved status in the non-surgical (medicine and biomechanics) board of our profession. The cases to document and the written and oral examination requirements are exactly like the surgical board but slanted to non-surgical treatment of

foot and ankle problems. Being certified by the ABPOPPM makes you eligible to become a Fellow of the American College of Foot and Ankle Orthopedics and Medicine (see [www.acfaom.org](http://www.acfaom.org) ) and to use the initials F.A.C.F.A.O.M. after his or her name.

Yes, Dr. Zapf is one of the few podiatrists who is both Board Certified by both the ABPS (i.e. the surgery board) and ABPOPPM (the orthopedic board) and a Fellow of both American College of Foot and Ankle Surgeons (ACFAS) and the American College of Foot and Ankle Orthopedics and Primary Care Medicine (FACFAOM). He has the right to put all this after his name:

Michael Zapf, D.P.M., M.P.H., D.A.B.P.S., F.A.C.F.A.S., D.A.B.P.O.P.P.M., F.A.C.F.A.O.M.

Sometimes he writes it: Michael Zapf, DPM, LMI\*

(\* = Lots More Initials).



This is the logo for the American College of Foot and Ankle Surgery

If your doctor is a podiatrist and board certified by the most recognized board you should be able to find his or her name at this site ([abfas.org](http://abfas.org)).

The M.P.H., by the way, is Dr. Zapf's Public Health degree from [UCLA \(Go Bruins!\)](http://UCLA) in Infectious and Tropical Diseases. (If you ever get Yellow Fever of the foot, he is your guy!)

### What about laser surgery?

First off, no matter what anybody says, even your trusted Aunt Martha, lasers cannot be used on a bone. Bunions are bone deformities. Those surgeons who advertise that they fix bunions with lasers

are advertising fraudulently! The ad I reprint here is an actual yellow page ad from two Glendale, CA, podiatrists who appear to be intentionally misleading their patients. Notice how the before and after picture of bunion surgery seem to be related to the word LASER. Better it should be related to the word FRAUD! These two doctors are cheese balls and should not be allowed to get away with such a misleading ad. (So, there, now I've said it. Let the slander suits begin.)



## What about the touted “tri-correctional” surgery.

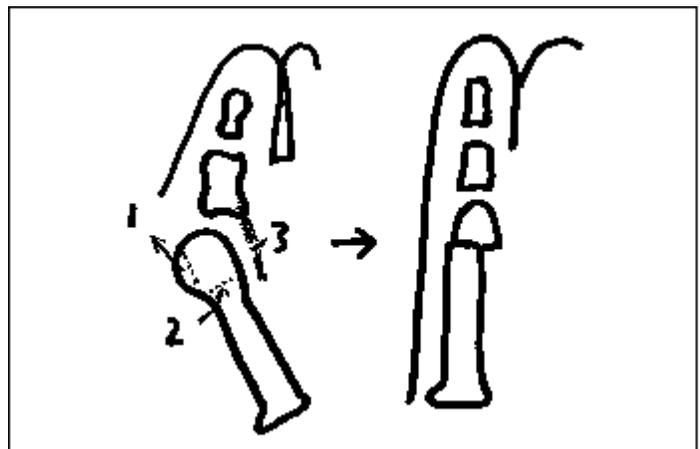
There have been are dozens of different bunion techniques devised over the years. Most of them have one thing or another wrong with them and get tossed on the scrap heap of medicine. Some procedures have proven to be great and do everything you would want a bunion surgery to do --- that is, correct the bunion with a minimum of trauma and a likelihood that the correction will last forever. There are several great procedures available that have stood the test of time. It's your foot surgeon's job to choose the one right procedure for you and your foot. There is *no one right procedure* for every bunion and one must be leery if someone proclaims that there is only one answer. Remember the old adage, *if all you have is a hammer every problem looks like a nail.*

Getting a lot of publicity is the so-called tri-correctional bunion procedure. It is an elegantly designed bunion procedure that has been around for many years, despite claims from some doctors that they invented it. It involves rotating the metatarsal head when you make bone cut at number 2 in my diagram at the beginning of this monograph. I use this procedure **only** when the patient needs it. The old name is Reverdin-Green-Laird after three podiatric surgeons who contributed to its development. The name “tri-correctional” is a public relations term for the same procedure. The doctors who currently proclaim the tri-correctional bunionectomy as the “end-all-and-be-all” of bunion surgery are practicing more public relations than surgical innovation. The tri-correctional you see advertised on television also involves a controversial method of fixation where the tip of a screw enters the very delicate cartilage on the metatarsal head. I feel this method of fixation can cause unnecessarily damage to the joint cartilage and set the stage for future arthritis. You will not find me, or many other successful surgeons, unnecessarily damaging the articular cartilage when there are other just as successful and less risky methods of achieving the same bunion correction.

## So What Do You Do In A Bunion Surgery?

My crude drawing demonstrates the basic steps in the most common type of bunion performed in most cases. It was designed by Dr. Dale Austin and is commonly called an Austin Bunionectomy. Other names are a “distal chevron” bunionectomy or a “bunionectomy with a distal metatarsal osteotomy.”

No matter what you call it the same steps usually apply. **(1) Remove the bump** of bone on the side of the foot. For small bunions you might stop here. **(2) A surgical fracture** is made in the neck of the



metatarsal bone and the head of the bone is moved closer to the rest of the foot. The bone is usually held in place with a screw. This holding in place is called “fixation” and is currently the standard of care in bunion surgery despite the fact that Dr. Austin never fixated one in 25 years of doing the surgery. Those doctors who do not fixate the bunion with any method are thought to increase the risk of slow healing or movement of the pieces after surgery. Finally (3) the soft tissues helping to hold the big toe in a bad position are cut and the toe is realigning. **Step (3)** is the all-important “**tendon balancing**” or “**lateral release**” that should be part of most bunion procedures.

Some disreputable doctors actually advertise that they can do bunions "without hospitalizations." This is another example of disingenuous puffery. In the United States no one has been hospitalized for a simple bunion surgery for almost 30 years. That is not true in other parts of the world. European and Asian doctors frequently hospitalize bunion patients for several days. This is reminiscent of how American doctors treated their patients 30 years ago.

### **Is Bunion Surgery Painful?**

With the techniques that we use, pain during the recovery from bunion surgery is a thing of the past. Most bunion patients almost never take their full complement of pain pills – and many take three or less (some none!). Recently Dr. Zapf hit the Trifecta of pain free surgery. Not one of three Thursday bunion surgery patients took as much as one pain pill. Now we cannot guarantee that any particular patient will have no pain at all but, it is low enough on the list to not qualify as a reason to be afraid of surgery.

We do hear from time to time that patients were told by orthopedic surgeons and podiatrists to avoid bunion surgery because of pain. You might want to avoid those doctors. They are probably telling the truth. In their hands their patients probably are experiencing significant pain after surgery. We often wonder what they do to cause so much pain to their patients. But on further reflection – we don't want to know. But we do feel sorry for their patients.

### **What about ZINGS?**

After bunion surgery patients frequently experience an unexpected electric, shooting “zing” in the area of the bunion surgery that can shoot right up the leg toward the knee. The zings come out of nowhere and can come at any time, even in bed. The sensation lasts just a second but it can be quite unnerving. You might experience a dozen a day or none at all. The zing does not mean that anything is wrong. It is probably related to nerve healing after surgery. If you do experience zings they tend lessen each day and go away, completely, after a week or two.

### **What does a bunion surgery cost?**

Most foot surgeons charge between \$1500 and \$2000 for a single bunion surgery. Our fee is the same \$1800 I have charged since 1985. I am contracted with most insurance

plans so what I charge bears little resemblance to the approved/contracted fee which has steadily declined over the years. The facility fee (hospital or surgical center) is probably another \$1000-3000/ You can call the business offices of the Thousand Oaks Surgery Hospital (805-777-7750), Los Robles Hospital (805-497-2727), the Los Robles SurgiCenter (805-497-3737), or Specialty Surgery Center (805) 413-7920 to get their specific prices for the facility fee for a bunion surgery. Past experience proves that they are a little hard to pin down on exact costs but it is worth a try. Finally, there is a charge for the anesthesiologist (around \$400-600).

If you have medical risks (diabetes, heart disease, etc.) we will ask you to get a medical clearance for surgery from your family doctor who will probably order laboratory work and a chest x-ray. For young, healthy patients, we might do the medical clearance ourselves.

### **Will my insurance cover a bunion surgery?**

Insurance companies by and large always pay for bunion surgery up to the limits of your policy. Bunionectomies are not regarded as a cosmetic procedure. As a service, my office will call your insurance company and verify coverage and get that all important "pre-authorization" if it is needed. Even though we do call your insurance company you are still, of course, responsible for all the charges incurred in your surgery. We try our best but sometimes there are insurance changes made by your employer, your insurance company or others that we do not know about. There are even cases where the insurance person on the phone line made a mistake or be just plain clueless. If any of these things happen, you will **still be** responsible for all the charges of your surgery. Remember only insurance companies can say with a straight face: "authorization of the procedure does not guarantee payment." (Try that line at your local restaurant. "Ordering this meal does not guarantee that I will pay for it.")

### **What can go wrong?**

Even if a bunion surgery is performed perfectly, things can still go wrong. The complication rate for serious problems is probably 2 to 3 percent and if you add minor annoyances, you can move the complication rate up to 4 to 6 percent. Prior to your procedure you will be asked to sign a consent form that includes the complications I have listed below. This consent experience, commonly referred to (with a smile) as *signing your life away* does not give me permission to mess up. These are the things that can go wrong even when no mistakes are made during the surgery. These are the "less than desirable" outcomes.

**1. Infection:** Any surgery that requires a cut in the skin can result in an infection. Fortunately the frequency of a bunion surgery infection is quite low. If you do get an infection it is obviously treated with antibiotics. The big risk is an infection in the freshly cut bone around the bunion. This risk is increased if you get the wound wet. You will be asked to keep it dry for two weeks after surgery.

**2. Slow healing:** If the skin heals slowly there will still be some part of the incision that is not completely closed at 2 weeks. Called a dehiscence, this is usually a minor nuisance. The real problem with slow healing is the bone. If at 4 weeks and 7 weeks the x-rays show that the bones are not healing correctly then we are possibly in trouble. This is a potentially serious complication that can require crutches and wearing a cellphone-like bone stimulator on your belt with wires going down to your feet. In my hands this complication happens once in every 2500 bunion surgeries (once since 1985).

**3. Numbness:** You cannot do surgery without cutting at least a few small nerves leaving a decrease in sensation around the wound. Sometimes, despite the best of intentions, a slightly larger nerve gets clipped and there is complete numbness on the top of the big toe about the size of a dime. This numbness either goes away after time or decreases in intensity until it is no longer noticed. This process can take 6-12 months. I have heard rumors that an occasional patient really dislikes this sensation and is unhappy with the surgery. Fortunately this has not happened with me.

**4. Scarring.** All wounds heal by scarring. Scarring is part of surgery. The length of the wound does not have any effect on the time it takes to heal or the thickness or color of the scar. A maxim in surgery is that surgical wounds heal from side to side not end to end. Wounds on some patients can practically disappear after a year or so. Wounds on particularly light or dark skinned people can be very prominent. Some people are prone to thick scars, called *hypertrophic*, and some, especially those with very dark skin, can even form a raised area called a *keloid*. To minimize scarring I take a little extra time to close the wound and use a *running subcuticular* suture with fine suture material called Prolene. In my suture method one single stitch is used and the suture snakes back and forth just below the skin. The railroad tracks of traditional suturing are avoided.

**5. Prolonged pain and swelling.** If you find that you need a refill of your pain pills, cannot get into tennis shoes in 4 weeks or cannot wear regular shoes at 7 or 8 weeks after surgery, then you are experiencing prolonged pain or swelling. The chart on page 15 describes where you should be on the post-surgery timetable. If you are taking longer than normal anywhere on the scale you might be sent to physical therapy for pain or swelling reduction or to increase range of motion.

**6. Recurrence of the deformity.** The fact that you have a bunion at all means that something is not right. Either some bones are at angles they should not be at or there are muscles pulling in directions they should not pull. Maybe you have ligamentous laxity, a too round metatarsal head, an elevated first metatarsal or a metatarsus adductus foot. Don't worry about knowing what these mean – just know that there are a lot of forces that go into making a bunion. A bunion surgery corrects the obvious bunion deformity but it cannot address all the forces favoring bunion formation. The number of forces tending to form a bunion and your age when you first notice it helps to predict the permanence of a bunion correction. As a general rule-of-thumb subtracting the age you are when you have a bunion surgery from 70 will give you an idea of the odds of a bunion

recurrence. This is the Zapf rule and it is just my idea – there is no scientific basis for this rule – just my opinion.

**7. Under or over correction.** In a bunion surgery the first metatarsal head must be

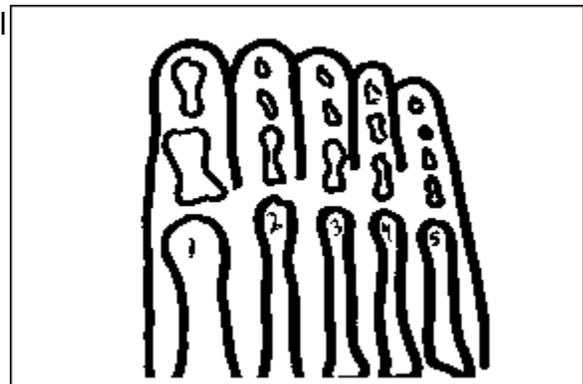


moved to a new position. Like all bunion surgeons I use my experience and judgment to move it what I believe to be just the right amount every time. Since this involves a judgment call there are times when, in retrospect, I realize that the bone could have been moved a bit more or it was moved a bit less than it could have. Out of every hundred surgeries, I probably move it too much or not enough only a few times. Often the patient either does not notice it or does not say anything about it until I point it out. If it is grossly under or over-corrected it can be only corrected with another surgery.

These photographs are from a patient who came to me disappointed with her previous bunion experience at another office. Look carefully and you will see that the big toes are leaning away from the foot. Technically this is called *hallux varus* and is difficult to repair. I know the surgeon who did this surgery and she is an excellent surgeon who just happened to get an unfortunate result.

**8. Lateral metatarsalgia.** This ungainly term refers to pain under the second or third metatarsal heads (see diagram below) noticed after bunion surgery. If the first metatarsal shortens excessively after surgery, excess weight can be transferred to the second or third metatarsals. The most common cause of excess shortening after surgery is excess bone resorption where the bone cut was made.

Pain under the second metatarsal is very common even in people who have never had a bunion surgery. It is caused by a redistribution of weight from the first metatarsal head to the second and third metatarsal heads. This causes a pain and sometimes callus or swelling, in the 2nd and 3rd metatarsal head region of the feet. Many people have some transfer of weight to the second metatarsal head after surgery and some have clearly too much. Pre-surgical conservative treatment for this condition can involve cortisone injections, wearing of shoes with some padding under the ball of the foot and the use of orthotics designed to shift weight from the second metatarsal.



**9. Reduced motion** of the bunion joint. Normal big toe joint motion is about 70° up and 10°-20° down. Sometimes a bunion surgery will reduce this motion in either direction. This is a frustrating complication. We have seen cases where the motion on the table is 80° just before we bandage the foot and only half that three days later. To prevent this complication, we want our bunion patients to begin early exercise of the toe joint. Sometimes patients can be their own worst enemy if they are afraid to move the bunion joint after surgery. If there are early indications of restricted joint motion, we will likely send you to physical therapy.

**10. Sesamoiditis.** The sesamoid bones are two peanut sized bones that sit under the first metatarsal heads. When you walk, nearly all your weight is born by these two little bones when you raise your heel. Before bunion surgery these little bones are usually out of position. After surgery, they are closer to their regular home. If they have become arthritic they can hurt in their new, now-correct, location. Predicting sesamoiditis is nearly impossible. Every once in a while, a perfectly great bunion surgery is thwarted by prolonged sesamoiditis (think Shaquille O'Neil the great Laker center who developed sesamoiditis after his bunion surgery).

### **One foot or two?**

The complication rate for a bunion surgery is only a modest 1-3% with bunions done one foot at a time. Our liability insurance company told us an interesting fact: **The complication rate for two bunions operated on at the same time is ten times that for a single bunion!** That means the complication rate approaching 30%!! While we do not think our two-foot complication rate is that high, it is higher than when only one foot is operated on. This is obvious when you think about the problem. If both feet are operated on and you stumble, you do not have a good foot on which to catch your fall. If you need to stand in the kitchen or at the office, you do not have a good foot on which to rest your weight. If it is all the same to you, it is better to do each foot at a separate time rather than both at one time. The second foot can be done as soon as five weeks after the first one.

### **Can bunions be done at the same time as other procedures like plastic surgery?**

We have done bunion surgeries at the exact time that plastic surgeons, gynecologists, orthopedists and general surgeons have done procedures "higher up." The other surgeons usually do not see a problem with this. For plastic surgery procedures, it actually makes additional sense. Many cosmetic procedures are not covered by insurance. If the cosmetic procedure is done during a foot surgery, the foot procedure pays for the operating room and the anesthesiologist.



## What about an assistant surgeon?

We believe that a bunion surgery is better performed with an assistant surgeon. This opinion is shared by the American College of Foot and Ankle Surgery, which states that an assistant surgeon for a bunion surgery is **usual and customary**. Compared to doing it alone or with just an operating room helper, a trained assistant surgeon is less likely to damage delicate nerves and arteries when he or she is carefully holding them out of the way. Also when a bone cut is to be made, it is very helpful to have two people look at the saw from two different angles at the exact same time. Think of the analogy of hanging a large picture. You may want a friend to stand back a few feet and tell you if it's straight and the right height. A second pair of eyes from a different angle can give you a very different perspective. With an assistant surgeon, the procedure is performed faster which decreases the risk of an infection. Less operating room and anesthesiologist time means lower overall charges for the procedure.

Despite these obvious facts, more and more insurance companies are disallowing assistant surgeons for bunion surgeries. This is a cost-saving measure on their part and not an acknowledgment that an assistant is not helpful. They get their information from a book written by Roberts and Millman, which is an accounting firm. Funny, we don't remember any accountant asking me for technical advice. Well, why do insurance companies rely on the guidelines of an accounting firm for their decisions on health care? Could it be, oh, maybe MONEY? We suspect it does.

We have a working agreement with each other and other podiatric surgeons. We all assist each other. If the insurance company refuses to pay for an assistant surgeon, one of these three will charge you for their services at a discounted rate. The fee is usually \$250 for the first hour and \$100 for every hour thereafter. Most bunion surgeries take just one hour. Even this rate is a sacrifice. The assistant makes much less income than what they would have made in their offices during the two hours it takes to travel to the surgery site, assist, and return to their office. We do this for each other because we all understand the necessity of an assistant surgeon, even if the insurance companies do not. Other surgeons in other places may have a very different opinion on assistant surgeons, so if you are reading this on the internet - ask them what their practice is.

## What is the post-operative care?

I divide the post-operative period into a four-week session followed by a three-week session. A stiff-soled post-operative shoe is worn for the first four weeks and athletic shoes are worn in the last three weeks. The initial 4-week period is marked by the need to rest and elevate the foot for three days after which regular walking in the post-operative shoe can commence. Showering or bathing where the foot gets wet is to be avoided for the two weeks that sutures are in the foot. At the end of 4-weeks an x-ray is

taken to assess healing. If the x-ray indicates that there is adequate bone healing, you can progress to wearing an athletic-type shoe. Regular walking activities can begin as long as you do them in the athletic shoe and not barefoot or in sandals, flip-flops or socks only. Fitness activities can begin after the seventh week when the final x-rays indicate that healing is almost complete.

Bunion Post-Op Recovery Chart for the most common bunion procedures							
Week	1	2	3	4	5	6	7
P.O.Shoe	← Wear post-op shoe for 4 weeks →						
Tennis shoe					← 3 weeks in tennis shoes →		
Elevation	3d						
Sutures In	Sutures for 2 weeks						
Keep Dry	Keep dry with sutures						
Coban	I like patients to wear compressive Coban for up to three months after surgery →						
X-rays					X		X

### When can I return to work/school?

Depending on the job, a bunion surgery will keep you off work for 4 days to 4 months. A flight attendant who needs to wear 2" pumps for 10 hours a day at 30,000 feet may well be off of work for 10-12 weeks. Someone with a job where they can sit and have enough autonomy to elevate their feet when they want and go home if the foot is too uncomfortable, can spend some time at the office in as few as 4 days. Generally if I do the bunion surgery on a Thursday, patients can go back to a mostly sitting job on the Monday 10 days later.

### What kind of sutures will I get? How many?

The deep sutures are all absorbable and will dissolve on their own. Skin sutures are made of a non-dissolving material like Nylon or polypropylene or they can also be absorbable. I usually use a single suture for the skin of about 8" in length winds back and forth between the two skin edges and is reinforced with adhesive Steri-strips. This single suture will be removed about 2 weeks after surgery. The Steri-strips stay on until they fall off.

## **When can I drive?**

If the left foot was operated on, driving can begin on the 4<sup>th</sup> day. For bunions on the driving foot, driving is difficult. It is not wise to remove the post-operative shoe to drive. Instead arranging for alternate transportation for the first few weeks is very helpful. Some patients have learned to drive with their left foot and some manage by using the right foot for the gas and the left for the brake. My advice is to try this out before the surgery in an empty parking lot (preferably one where my car is not parked.)

## **Can I wear high heels after surgery?**

Two thirds of women who want to return to wearing high heels after bunion surgery do so, but may sacrifice comfort and style, according to a 2016 research study from the University of Manchester in the United Kingdom. Interestingly women who feel they have to wear "power heels", like attorneys, subconsciously expect high heels to hurt, even if they never had a bunion. These women do the best in accepting a little discomfort after surgery, the study showed. Keep in mind that it may take up to a year for all the pain and swelling to go down after a bunion surgery so don't throw away those heels too soon after surgery if they are, at first, a bit uncomfortable.

## **What prescriptions will I get after surgery?**

I always give you a pain pill prescription and, sometimes, a second prescription for an anti-inflammatory. My long-time favorite anti-inflammatory medication is Celebrex because it was formulated to cause less stomach issues and does not encourage bleeding like aspirin and all the other anti-inflammatories like Motrin, Aleve and Naprosyn. If you can get it by your insurance company, you can start taking Celebrex a day or two before your surgery so you have a good level of the medication in your system at the time of surgery. The main drawback of Celebrex is the reluctance of most insurance companies to cover it.

For pain I usually prescribe Vicodin (hydrocodone with acetaminophen) but I am open to others if you have a favorite. Take your pain pills *only-if* you have pain. Except in rare circumstances you will not need to use your entire first batch of pain pills.

## **Will I hear anything? Will I have to be "put out"?**

Most patients will elect to have the procedure done under local anesthesia with **twilight-sleep** sedation also called MAC or *monitored anesthesia care*. With this method, it is virtually impossible to worry about anything during the procedure even if you are a bit awake. You are given a little extra during the "painful parts" like receiving the local anesthesia. If you are the timid type you can tell the anesthesiologist that you want to "hear nothing" during the procedure and they will always comply with your request by giving you what they playfully call a "Big-MAC". For those teens and younger patients and those who are extra-afraid I suggest a general anesthesia.

## What about minimal incision surgery?

Minimal incision surgery (MIS) is a controversial procedure in podiatric circles and I must confess the ignorance about it that comes from not doing it. The term refers to a technique of placing a high-speed bur into a tiny incision and moving it around to remove the bunion. Some podiatric surgeons (I have never heard of an orthopedic surgeon performing MIS) can do a lot of good with this procedure and some do a lot of damage. I have seen bunions that were "fixed" with a MIS that left the foot a nearly crippled. I have never seen that with the "open" or "classical" procedures performed by most foot surgeons. Some of the older MIS surgeons have developed a shady reputation by advertising **lunch time bunionectomies** and **Band-aid bunionectomies**. Neither is true. While they can be performed in an hour's time, patients who return to work the same day are not helping their healing process. I share the desire of the overwhelming majority of podiatric and orthopedic surgeons to actually see the structures we are working on.

## What is hallux limitus?

A big toe (called a hallux) should have 70° -90° of "up" motion (called dorsiflexion) and 20° -25° of down motion (plantarflexion.) The toe should move freely without any restrictions, clicks, catches or feeling like there is grinding. Foot biomechanics requires that the metatarsal move down in order for the big to move up. In essence the toe ends up on top of the first metatarsal when you raise your big toe.

A joint that has less "up motion" that needed is said to have **hallux limitus (pronounced "limi-tus")**. With hallux limitus, patients experience pain when running, walking uphill and eventually just walking. The bone in the big toe is jammed against the metatarsal head, which causes inflammation and pain. Often you eventually develop bone spurs around the head of the metatarsal that you can feel with your finger and rubs in your shoe. This spur (called a **flag sign**) can be seen on an x-ray. If an x-ray is taken with the heel off the ground and the ball of the foot on the ground, the base of the toe bone can be seen to impact the first metatarsal instead of sliding over it. Hallux limitus makes patients shift the weight to the side of the foot and it is not uncommon to see calluses under the lesser metatarsals, especially under the second metatarsal (behind the second toe.)

Mild hallux limitus can be addressed with a slight modification to a traditional bunion surgery. The metatarsal head can be shifted down and over instead of just over toward the second metatarsal.

Moderate hallux limitus needs any one of several modifications to regular bunion surgeries. My favorite procedure is known as the "**Youngswick**" modification after Dr. Fred Youngswick of the California College of Podiatric Medicine (my school, rah, rah, rah). Clever man that he is, he suggested taking an extra wedge out of the top of the "V" or chevron bone cut in the first metatarsal head. This will allow the first metatarsal head to move down and back thereby allowing the big toe to move up and over the head and allow easier walking and running. This is a very successful procedure and is commonly done by many podiatric surgeons. Interestingly, it is nearly unknown in the orthopedic community.

More severe hallux limitus is accompanied by near complete degeneration of the joint with pain with any motion. This might require either of three procedures: a Keller bunionectomy, a Keller bunionectomy with an implant or a joint fusion.

A **Keller bunionectomy**, named after the civil war surgeon that invented the procedure, involves the removal of the base of the toe bone next to the metatarsal head. It is a joint destructive procedure and designed for those people who want to regain freedom of movement of the big toe joint. The big toe is shorter after the procedure and the joint does not have the same power it had prior to the procedure. Recovery is very quick since only soft tissues need to heal. Transfer of weight to the second metatarsal bone with resultant pain and callus is common.



Those who do not want their big toe to shorten after a Keller bunionectomy might elect to have an **implant** put into the joint (example of implant shown on the left). Traditional implants are double stemmed with a hinge in the middle. More sophisticated implants are the modular or two-piece. The developers of modular implants claim that they are capable of bearing more weight and allowing more activities than double-stemmed implants. There is some question about the validity of this claim.

An alternative to the modular is a metal "hemi" implant that is put in just one side of the joint, usually the toe bone side. These implants have a long track record of helping

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Said Jane B. about her Youngswick performed 6 years earlier:

"Dr. Zapf provided an alternative to fusing the joint in my large toe which would have left me with a lifetime limp. His method of reconstruction has given me my life back - hiking in the creek bed in Topanga Canyon and gardening on our hilly property is no problem. Thanks Dr. Z"

Jane, you are very welcome. Thank you for your kind comments.

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relieve the pain of hallux limitus and I have found them to work very well. Pictured in this monograph is the one designed by Dr. Lawrence of San Diego. I am very fond of this implant.



An alternative to implants in patients with severe hallux limitus is a **surgical fusion** of the big toe bone to the first metatarsal. This results in a stiff joint but one quite capable of bearing significant weight. The fusion is done at an angle to allow patients to wear their favorite shoe heel height. For men this would be a  $\frac{1}{4}$  -  $\frac{1}{2}$  inches and women 1-1 $\frac{1}{2}$  inches. In general orthopedic surgeons are fond of fusions and podiatric surgeons are more likely to use an implant.

### What is "drilling" or "fenestrating" of the cartilage?

All of the joints of our body are covered by an articular cartilage that is many times more slippery than ice. It allows our bones to glide over each other. In surgery this cartilage appears as white as snow. If the cartilage is damaged it becomes thin and yellow. Eventually it can flake off leaving raw bone exposed. Joint motion with exposed cartilage is both damaging and painful. If your foot surgeon notices that there are areas where this cartilage is missing, he or she may try to stimulate new cartilage formation. Drilling tiny holes into the exposed bone does the stimulation. Around every small hole your body will grow a little circle of fibrocartilage. Fibrocartilage is not as good as articular cartilage but it is much better than raw exposed bone. The photo shows the holes or "fenestrations" drilled into the head of the first metatarsal head at the time of surgery. This patient had a loss of cartilage on the head of the metatarsal.



### Can new cartilage be encouraged to grow?

The following information is taken from the best-selling book *The Arthritis Cure* by Jason Theodosakis; M.D. Dr. Theodosakis is a well-known physician at the University of Arizona. His greater claim to fame is that my wife, Jackie, was his baby sitter back in their hometown of Schiller Park, Illinois. (I think my wife was only 3 at the time)

He reports that two commonly available over-the-counter food supplements can aid in restoring healthy cartilage. **Glucosamine sulfate** helps to grow new cartilage and **chondroitin sulfate** brings water into the new cartilage. I suggest that every bunion patient (and every arthritis sufferer, for that matter) consider taking these two supplements for several months after their bunion surgery and any time that their

cartilage is drilled. (Note, hip, knee, elbow and shoulder surgery frequently involve drilling of the bone as well.)

The appropriate dose is described in the table and should be divided up into 2 to 4 doses taken throughout the day with meals. Glucosamine comes in four equally useful forms: hydrochloride, hydroiodide, n-acetyl and sulfate. The sulfate form is the most common but all four are, more or less, equivalent. Those with a thyroid condition should avoid the iodide form.

If you weigh	You should take
Less than 120 pounds	1,000 mg of glucosamine plus 600 mg of chondroitin sulfates
Between 120 and 200 pounds	1,500 mg of glucosamine plus 1,200 of chondroitin sulfates
Over 200 pounds	2,000 mg of glucosamine plus 1,600 mg of chondroitin sulfates

The chondroitin comes only as a sulfate. There are many studies that document that the chondroitin and the glucosamine reduce arthritis individually and together they are more effective than they are by themselves. It would be best to take both. You can get both in a product called **Move Free** made by Schiff and sold at Costco/Price Club and many pharmacies.

Vitamin C and the mineral manganese are needed to use these two supplements properly. Be sure you take them separately if these two are not included in the supplements that you purchase. Manganese up to 50 milligrams per day seems to be safe. Between 500 and 4,000 milligrams of vitamin C is the required dose and should also be broken up into several doses throughout the day.

**What other diet or vitamin advice do you have?**

**FIRST: NO HERBALS FOR 2 WEEKS BEFORE SURGERY!**

Many herbal preparations and diet pills (like Merida) mix unfavorably with anesthetic agents with sometimes dire consequences. Do not take Ginkgo, St. John's Wort or any other non-vitamin herbal product for one week prior to the surgery or it might be canceled by the anesthesiologist.

One anesthesiologist even requires a TWO week abstinence.

Before undergoing any surgery, you should make sure that you have a diet that provides an adequate amount of all the vital nutrients necessary for healing and reduction of inflammation. If you are unsure of your diet, high quality and potent supplements can be quite helpful. Supplements are not regulated by the Food and Drug Administration (FDA), so they may not contain what they say on the label. It is best to buy name brand products from companies you trust.

There are some theories that the accumulation of free radicals can contribute to arthritis. These can be counteracted by either eating a variety of food groups each and every day or by taking a quality anti-oxidant food supplements. The supplement should contain the following ingredients:

Vitamin A, beta carotene, the carotenoids – 5,000 IU (international units)

Vitamin C – 500 – 4,000 mg (milligrams: 1,000 milligrams = 1 gram)

Vitamin E – 100-400 IU (international units)

Selenium – 55-200 mcg (micrograms)

Boron – 3 mg for adults

Bioflavonoids – some of the 4,000 kinds found in foods (these go by the names

Citrus bioflavonoids, rutin, quercetin, hesperidin, catechins, ginkgo biloba, milk thistle extracts and wine proanthocyanidins)

## Testimonials

[These testimonials have been shared with the permission of the patients]

- *(Day of surgery) I had bunion surgery in the morning – SurgiCenter was extremely pleasant and professional....(I had) no pain during or after the surgery...filled my pain prescriptions and took one (pain pill) the night of surgery, only fearing I might have pain, which I did not. I kept my foot iced and elevated for three days but was able to easily move wearing the special shoe the SurgiCenter gave me. (4 days post-op) I had my post op checkup. The doctor was impressed by how well I walked...he changed the dressing on my foot and I resumed my life. (2 weeks post-op) I had my sutures removed and had my foot wrapped (with Coban) and still had no pain. (5 weeks post-op) I am wearing tennis shoes and pretty much am back to normal. I took some Yoga classes and all was good. (8 weeks post-op) All in all, a very positive experience with very little discomfort and no complications. I have already scheduled the surgery for my other foot in 2 months! I have sent you a bunch of patients for bunion surgery and they are also doing great. (And she has been one of my most faithful referring patients, Thank you Jody)*

Jody R, Westlake Village

- *I had my bunion surgery about six years ago and I must say that it was a great experience...the surgery was excellent...I never took a pain pill. I had the bunion on the right foot done 20 years ago by a doctor in Van Nuys but it came back...now I am able to walk 20 miles a week in my Saucony running shoes...Dr. Zapf provided excellent in-office instructions and the surgery center was excellent (I was in the hospital for my previous bunion)...the only complaint that I have is that I did not fix my tailor's bunion on the right foot at the same time.*

Christa K, Agoura Hills

- *This is the greatest thing ever! I just saw my beautiful foot for the first time [after the bandages were removed] And I got it without ANY pain! I can hardly believe all this can be done and it doesn't hurt! I took one pain pill thinking it would begin to hurt a lot after surgery - even though Dr. Zapf said it wouldn't - and it has been great. I wish I had done it sooner !!! Next year I'm buying some great sandals for the first time in maybe ten years at least!!! Thanks you, Dr. Zapf*

Cheryl B. Agoura

- *I had bunion surgery 6 weeks ago and everything is going fine. I still walk with a little limp because the foot is a little stiff in my shoes but there is no pain, swelling and the scar is almost invisible... the whole process was a piece of cake. I wouldn't hesitate to do it, again. It was less severe than I ever expected. I am basically a chicken and I don't like pain. This surgery was essentially pain free. When I heard that it involved cutting the bone I anticipated pain but pain wasn't to be the case ... I'll tell you a secret: I never even filled the pain pill prescription and I only took the anti-inflammatory medications for a week...I have been walking, standing and gardening with no pain...Before the surgery I was leery and put it off for a long time. Now I am glad I decided to do it...If you need a spokesperson for bunion surgery, I will be glad to do it*

Peggy L Thousand Oaks

- *I had my first surgery on June 11 on the left foot (that's the S. Mary photograph at the end of this monograph). I returned to work on June 23. By the 7<sup>th</sup> of July I was back in tennis shoes. I scheduled my second surgery for August 27 and returned to work on September 9. This has been one of the easiest surgeries I have ever gone through. It is so nice to see my feet and they actually look normal now. Besides, I have gone down ½ sizes in shoes since my first surgery. The staff in Dr. Zapf's office are some of the most caring and helpful people I have ever met. Also, the staff of the Outpatient Surgery facility at the Los Robles Hospital was extremely caring and helpful. Dr. Zapf is one of the finest surgeons I have ever had the opportunity to know. I have been telling everyone I know to see him if they have any problems with their feet. Please call me (805) xxx-xxxx between 8 and 5 if you want more information.*

Mary S, Thousand Oaks

- *A bunionectomy (with Dr. Zapf) is a pretty much painless surgery. [I had] minimal discomfort for about a week; actually more uncomfortable than painful took no pain meds. I had a slight amount of numbness on top of the toe but after three months it is coming back. I have slight momentary aches. I followed the doctor's instructions immediately after surgery and there were no problems with swelling...I am very pleased with the whole process...I can walk  $\frac{3}{4}$  of a mile at a decent pace.*

Karen D, Thousand Oaks

- *Should you have bunion surgery done by Dr. Michael Zapf? Yes, Yes, Yes!! My surgery was six weeks ago and I'm walking and wearing shoes without pain. I can't say enough wonderful things about Dr. Zapf, his caring staff and the staff at the Los Robles Surgery Center, They all work exceptionally well together. Thank you, Dr. Zapf. Anyone can call me at (805) XXX-XXXX for any reason.*

Mary Jane P – Newbury Park

- *My greatest concern before my bunion surgery was how long I would not be able to ride my horse, let alone care for my family. Not only was there no pain, recovery was very quick. I was back to work 6 days after surgery and back in the saddle 5 Saturdays after surgery. It almost seemed too easy and painless. I'm having my right foot done in early December and I'm looking forward to it. Now, I just wish I hadn't waited so long to have my bunions removed.*

Maureen M – Thousand Oaks

- *I had surgery December 2, today is December 31 and I am going for a long walk!! What a way to start the New Year with no pain! Surgery was a breeze! The 1<sup>st</sup> 3 days I spent with my foot elevated and reading. I can't wait to have the other foot done. One bad thing was I couldn't get my Christmas sock on for a dinner on December 5. I made a bow for my goofy shoe instead. Dr. Z was fantastic!!*

Karleen W – Thousand Oaks

- *I could really tell the difference when I first put on my tennis shoes and started walking again. I thought, "Oh, so this is what it feels like to walk without pain."*

Carol W

- *I am a 73-year-old woman. Dr. Zapf removed bunions from both of my feet. I had no pain after the operations, which were a year apart. My feet are normal after years of not being able to buy shoes to fit my painful feet.*

Helen E. M, RN. (805) XXX-XXXX

- *I have had two bunion surgeries performed by Dr. Zapf in the past 5 years. Both surgeries went extremely well with no pain and very little discomfort. Dr. Zapf and his staff are wonderful to work with and it is a joy to be able to wear shoes without pain. Thank you, Dr. Zapf!*

Penny F, Newbury Park

- *I had the Youngswick (bunion) procedure three years ago. I had to take only one pain pill. I had almost no motion before the surgery and the motion I had was painful. Now I have movement and can wear heels that I could not wear before. I followed Dr. Zapf's instructions on exercise as he told me. I am very" happy with the result.*

Judith A. H

## Pictures and photographs

### Note:

The photographs show a "gap" between the big toe and the second toe. This is intentional. The gap will disappear the moment regular shoes are worn. If there is no gap the moment the surgery is done there is great risk that the bunion will look "uncorrected" in short order.





17558 - 07/02/98 (DR: Zapf, D.P.M.)  
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LOS ROBLES SURGICENTER



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SANDRA L.



SANDRA L.