

POLIO PERSPECTIVE

MAY 2017

Editor, Millie Malone Lill

Publisher, Wilma J. Hood

IN THIS ISSUE

That Brace

by Jim Crozier

Polio and Vaccine-Associated Paralytic Poliomyelitis

Childhood Infections

- ***R**Deviewed by a board-certified physician.*

Updated July 03, 2016

A NEW FACE FOR AN OLD ENEMY: POST-POLIO

By Barbara Williams Cosentino, RN, CSW

What Will the Neighbors Think?

By Millie Malone Lill

WEB CORNER

Other Polio Newsletters

A Little Bit of Humor

That Brace

by Jim Crozier

Ever since I can remember, there was that brace.

I was 18 months old when I became part of the largest Polio epidemic in US history, summer 1952.

After a couple months in a Dayton, Ohio hospital, I was back home to the little travel trailer that my parents were living in at the time. My first memories were after they bought a house and I had learned to walk with the brace. Shortly after that we moved to Warren, Pennsylvania.

That brace became a large part of my identity, on my right leg, holding it straight. In those days made of steel and leather. But I was a busy boy, very active, and like other polio people of my generation was encouraged to “be normal”. And I was. I walked to school, and did just about everything except play baseball and run track.

It required special shoes where a steel socket had been installed so the brace could attach to the right shoe. This always presented a problem in places where people were expected to remove their shoes, and going to the beach was always a choice between struggling to walk from the parking lot to the water without it, or putting it back on after swimming and trying to keep the sand from getting between me and the leather.

Walking with a stiff leg presented its own set of problems: walking in more than a couple inches of snow, for instance; or sand, or grass; or, walking along a slope where the uphill side was on the right.

It seems that it was always rubbing on me somewhere: on my hip, the knee pad, the ankle joint, often drawing blood – but I learned to just live with it. Also, all of my trousers had one or two holes at the knee unless they were very new – it never took long for the point of the knee joint to cut that hole. Originally there was only one ring lock at the knee, but they improved the design later on and put a ring lock on each side of the knee joint which made the brace much more dependable – but that meant that most of my pants had a hole on each side of my knee, instead of only one.

The brace man would come to Warren from Erie for “Post-Polio Clinic” that happened every few months with the support of the Warren County Crippled Children’s Committee and the First Presbyterian Church. The brace would always need some kind of adjustment – after all, I was a growing boy. As a teen-ager one such adjustment earlier in the day caused the brace to break just as I was pushing the brake pedal of my father’s Volkswagen Micro-bus resulting in my first auto crash.

Then there were those times when I would have the opportunity to be with a girl – I didn’t want to be rubbing that “thing” against her – I got very adept at unfastening it and slipping it off from under my jeans.

Later on I was in New York City. As a young adult, I wasn’t growing any more, and it had been years since the brace had had maintenance. And, as always, it was always rubbing a hole in me somewhere. Finally, I took the damn thing off and threw it in a dumpster. The leg, while weak, kinda worked, and I started walking with a cane. That’s the way it was for the next 41 years. After a few years I started using a stool on stage, but other than that I was hauling musical equipment, and still acting normal as the leg got progressively weaker due to the nature of Post-Polio Syndrome.

More and more, I was supporting myself with my arms – bracing my right leg with my right arm, and leaning harder on my cane with the left – until finally my shoulders and hands just quit working. It was the scariest time of my life and I really didn’t know if I would ever be playing stringed instruments again – particularly the big bass fiddle.

It was clearly time to think about getting a brace again. Fortunately I had recently joined an HMO that made it unusually easy to get one – I only needed a prescription from my primary care physician. After hearing of the experiences of other polio people, I realize that I was very fortunate to be where I am because the new brace has been damn near perfect, and has enabled me to do things I haven’t been able to do since I was a kid.

This one is a little different than the 1950’s model. For one thing, it is made of aircraft aluminum, and

instead of requiring a custom shoe, it has a plastic foot mold that fits into the right boot that I was already wearing (only requiring that I remove the insole to adjust the height of the foot mold). It has a plastic hip support and calf band instead of metal and leather and a Velcro strap at the top instead of a buckle. But, it has the same classic leather knee pad of yore – And I insisted that the hip support come all the way up under my right buttocks so I can completely support my weight on the brace, just like I did for all those active years of childhood. One other improvement comes in the design of the knee joint. It still has the same ring lock, but the big pointed thing is gone so my pants have fewer holes at the knee.

Returning to using the brace has given my shoulders and hands the time to recover their strength and flexibility, for which I am hugely grateful. My mobility is greatly enhanced and I can now stand to play on stage for a few songs, which is really handy if you are just sitting in for a couple songs to not have to haul a stool.

Polio and Vaccine-Associated Paralytic Poliomyelitis

Childhood Infections

- *RDeviewed by a [board-certified](#) physician.*

Updated July 03, 2016

Polio

Polio is an [ancient disease](#).

Although the first modern polio epidemic is thought to have occurred in 1887, when 44 cases were reported in Stockholm, Sweden, polio likely existed as far back as 1580 BC.

A type of enterovirus, polio usually causes infections without symptoms or very mild symptoms, including a low-grade fever and sore throat.

Other children can develop more worrisome [polio symptoms](#), though, including those with:

- nonparalytic aseptic meningitis - have a low-grade fever and sore throat with stiffness of the neck, back, and/or legs, and increased or abnormal sensations, which can last for 2 to 10 days
- paralytic polio - have a low-grade fever and sore throat, and then 1 to 18 days later, they may develop increased deep tendon reflexes, severe muscle aches, and muscle spasms, followed by decreased deep tendon reflexes and flaccid paralysis. Some of these children have permanent weakness and paralysis and paralytic polio is fatal in at least 2 to 10% of cases.

Polio hit its peak in the United States in 1952, when there were over 21,000 cases of paralytic polio.

The United States has been polio-free since 1979. That last outbreak had been among an unvaccinated group of Amish in several states in the Midwest.

Polio Vaccines

Of course, it was the development of the first polio vaccines that stopped the [polio epidemics](#) after 1952 and helped us eliminate the endemic spread of polio.

The Salk vaccine, an inactivated polio vaccine, was licensed in 1955. This was followed by the

introduction of the original Sabin vaccine, an oral, live polio vaccine, in 1961.

Both polio vaccines had their strengths and weaknesses:

- the Sabin vaccine provides lifelong immunity against polio, including intestinal immunity, and shedding of live weakened (attenuated) virus, which can help with community immunity, but the vaccine can also rarely cause vaccine-associated paralytic polio (VAPP) and vaccine-derived polio
- the [Salk vaccine](#) provides great protection against polio after three doses, especially paralytic polio (intestinal immunity is not as good though), and since it isn't a live virus vaccine, it can not cause vaccine-associated paralytic polio nor vaccine derived polio

When a trivalent oral polio vaccine (protected against all three strains of the polio virus) was introduced in 1963, it replaced the Salk vaccine in the US.

An enhanced version of the Salk vaccine was introduced in 1987 and it went on to replace the oral polio vaccine in many developed countries that had eliminated polio because of concerns about vaccine-associated paralytic polio (VAPP).

When you look at the strengths of the oral polio vaccine, though, it is easy to see why it is used when you are still trying to get [wild polio](#) under control in an area. In general, the oral polio vaccine is also less expensive and much easier to give to children, since it doesn't require a shot.

Vaccine-Associated Paralytic Poliomyelitis

Vaccine-associated paralytic poliomyelitis (VAPP) occurs when the weakened live poliovirus strain in the oral polio vaccine changes and causes someone, or a very close contact, to develop symptoms of paralytic polio.

The change occurs in the intestine of someone who has received the oral polio vaccine, typically after the first dose and most commonly in people with immune system problems.

Fortunately, VAPP does not lead to outbreaks of polio and it is very rare, only occurring after about 1 in 2.7 million doses of oral polio vaccine are given.

Still, that ended up as 5 to 10 cases a year in the United States, and once polio was eliminated in the United States, the risk-benefit ratio no longer favored the oral polio vaccine. When the only kids getting polio were getting vaccine-associated paralytic poliomyelitis it became time to make a switch to the Salk vaccine.

[John Salamone](#) became the advocate for that change. His son, David, developed VAPP after getting his oral polio vaccine in 1990. At the time, the live, oral polio vaccine was still a standard part of the childhood immunization schedule.

As early as 1977, an IOM report "Evaluation of Poliomyelitis Vaccines" stated that "five major policy options were considered for the United States in the context of the 60-70 percent level of vaccination now reached." These options including using only OPV, only IPV, and a combination of both vaccines, etc. Low vaccination rates seemed to be a big factor in influencing the recommendation to go with only OPV at the time.

As time went by, it became clear that the switch to IPV was necessary, but fear of changing a program that had been working so well for so long and perhaps uncertainty that the switch, including a need to greatly increase the supply of the inactivated vaccine in a short amount of time, kept health experts from making it until 1997. The sequential IPV/OPV vaccine schedule was then formally changed to an

all-IPV vaccine schedule in 2000.

Vaccine-Derived Poliovirus

Although it sounds similar to VAPP, vaccine-derived poliovirus strains are a little different.

A [vaccine-derived poliovirus](#) (VDPV) strain also undergoes genetic changes from the weakened (attenuated) live poliovirus strain in the oral polio vaccine and can then cause paralytic symptoms, but it also develops the ability to continue circulating and cause outbreaks.

These outbreak or circulating strains of [vaccine-derived poliovirus](#) (cVDPV) are fortunately very rare. When they occur, it is because a lot of people in the community aren't vaccinated against polio, as high vaccination rates protect against cVDPV, just like they protect against wild poliovirus strains.

The latest [outbreaks of vaccine-derived poliovirus](#) have occurred in:

- Mali
- Ukraine
- Nigeria
- Madagascar

It is important to remember that although 580 polio cases occurred after 20 outbreaks of cVDPV around the world from 2000 to 2011 and there were 15,500 cases of wild paralytic polio during that time, the polio vaccine itself prevented over 5 million cases of paralytic polio!

Sure, without polio vaccines, we wouldn't have VAPP, VDPV, and cVDPV, but we would go back to the days when over 500,000 people a year developed paralytic polio.

Post-Polio Syndrome

[Post-polio syndrome](#) is another term to be familiar about when studying [polio](#).

Like children who recover from measles and then have a risk of developing subacute sclerosing panencephalitis (SSPE), a post-polio syndrome is a late complication of paralytic polio.

About 25 to 40% of those who had paralytic polio can develop new symptoms 15 to 20 years later. Symptoms of post-polio syndrome can include new muscle pain, new muscle weakness, and even new paralysis. Or they may have worsening of previous muscle weakness.

Post-polio syndrome does not occur after getting the live polio vaccine.

What You Need to Know about Polio

Other things to know about polio include that:

- Improved hygiene and sanitation didn't cause polio to disappear, as some [anti-vaccine conspiracy theorists](#) argue. Instead, polio changed from an endemic form, infecting most children when they were infants and still had protection from maternal antibodies, to an epidemic form, as fewer people were exposed and developed immunity when they were younger.
- There are three different serotypes of wild poliovirus (WPV). Natural immunity provides lifelong immunity to the specific serotype of polio to which you were infected.
- [SV40](#) contamination in the original polio vaccines from 1955 to 1961 is not associated with an increased risk of cancer.

- The standard vaccination schedule includes four doses of a polio vaccine at 2 months, 4 months, 6 to 18 months, and a booster dose at 4 to 6 years of age.
- The [Cutter Incident](#) refers to a problem with polio vaccine manufactured by Cutter Laboratories which was not completely inactivated, causing paralytic polio in at least 200 children and 10 deaths in 1955.
- There have been at least 73 cases of immunodeficiency-related vaccine-derived poliovirus (iVDPV), in which a person with a rare immune disorder continues to shed poliovirus after vaccination, typically for up to six months. Even though up to seven of these cases have been known to shed virus for more than five years, including one with common variable immunodeficiency (CVID) who has been shedding vaccine-derived poliovirus for 28 years, this is not thought to be a common way to spread the polio virus to others.
- Because of VAPP and VDPV, there will eventually be a worldwide phase out of the oral polio vaccine and a [switch to the inactivated polio vaccine](#) until polio is completely eradicated. Countries are usually not switched to an all-IPV immunization schedule until they demonstrate high vaccination rates and the risk of importation of wild polio is low. And there will soon be a [switch to a bivalent oral polio vaccine](#) (bOPV), removing the type 2 component of the vaccine, decreasing the risk of VAPP and cVDPV. By May 2016, the trivalent oral polio vaccine (tOPV) will no longer be used, as we will have switched to using IPV and bOPV.
- There is no cure for polio.
- In addition to polio, other types of acute flaccid paralysis include nonpolio enterovirus infections, rabies, Guillain-Barre syndrome, West Nile virus infections, acute transverse myelitis, and myasthenia gravis, etc. Many other causes of flaccid paralysis also include sensory signs and symptoms though or can be differentiated from polio in other ways.

Most importantly, know that polio is close to being eradicated. Type 1 polio remains endemic in only three countries, Afghanistan, Nigeria and Pakistan, and [polio cases](#) are at an all time low. There were only 359 cases of wild poliovirus infections in endemic and non-endemic countries in 2014. More importantly, year-to-date polio cases in 2015 are well below what they were at this time in 2014 and wild virus types 2 (the last case was in 1999) and 3 (the last case was in 2012) polio appear to have been eliminated.

[Get Educated.](#) [Get Vaccinated.](#) Stop the Outbreaks.

Sources:

CDC. Achievements in Public Health, 1900-1999 Impact of Vaccines Universally Recommended for Children -- United States, 1990-1998. MMWR. April 02, 1999 / 48(12);243-248.

CDC. Epidemiology and Prevention of Vaccine-Preventable Diseases. The Pink Book: Course Textbook - 13th Edition (2015)

Dunn G. Twenty-Eight Years of Poliovirus Replication in an Immunodeficient Individual: Impact on the Global Polio Eradication Initiative. PLoS Pathog 11(8): e1005114.

Vaccines (Sixth Edition)

Long. Principles and Practice of Pediatric Infectious Diseases (Fourth Edition)

A NEW FACE FOR AN OLD ENEMY: POST-POLIO

By Barbara Williams Cosentino, RN, CSW

Forty years after surviving a childhood bout of [poliomyelitis](#) (polio), 53-year-old Michael B. began experiencing a medley of uncomfortable, frightening, and debilitating symptoms. It started with an overall sense of bone-crushing fatigue, and was soon followed by joint pain and muscle weakness. Finally, when the pain and exhaustion became overwhelming, he went to his physician, who diagnosed his problem as [post-polio syndrome \(PPS\)](#).

A Debilitating Disease

"Polio was America's summer terror," says Dr. Nancy Frick, a polio survivor and an expert on the long-term psychological effects of childhood polio. Summer epidemics of polio ravaged the Western industrial world during the 1940s and 1950s until the development of the Salk (1955) and Sabin (1961) [vaccines](#).

Poliomyelitis, also known as infantile paralysis, is an infectious disease caused by a virus that enters the gastrointestinal tract, then the bloodstream, and finally the central nervous system. Infected nerves in the brain and spinal cord stop working normally, which leads to weakness or paralysis of the muscles in the arms, legs, chest, diaphragm, and throat.

Up to 90% of the motor nerves are affected by the poliovirus, and at least 50% are killed off. According to Alan J. McComas, MD, a Canadian neurologist at McMaster University in Hamilton, Ontario, the remaining healthy nerve cells send out "sprouts" to reconnect the muscle fibers that were orphaned when their motor neurons were killed.

Long-Term Repercussions

Thirty or more years after the initial injury, the sprouted nerves (which have carried up to 500 times their normal workload) begin suffering from overuse. These overused nerves—along with overworked joints that hurt and throb after decades of doing too much work with too little muscle support—make up the syndrome known as post-polio syndrome (PPS). Symptoms of PPS include:

- Generalized fatigue
- Muscle weakness
- Muscle atrophy or wasting
- Joint pain
- Cold intolerance
- Swallowing and breathing problems
- Sleep disorders

A common symptom of PPS is fatigue. Dr. Richard L. Bruno, director of the Post-Polio Institute at Englewood Hospital and Medical Center in Englewood, New Jersey, explains that, "Brain fatigue—the inability of polio survivors to concentrate and stay awake as the day goes on—is associated with a marked reduction in the brain-activating hormone ACTH. [Magnetic resonance imaging \(MRI\)](#) reveals damage to the brainstem neurons responsible for activating the brain." It also appears that polio survivors suffer from an impaired ability to make dopamine—a brain chemical necessary for optimal nervous system functioning.

According to Drs. Frick and Bruno, psychological symptoms, such as chronic stress, anxiety, [depression](#), and compulsive and Type A behavior, are also evident in polio survivors.

Living With PPS

Polio survivors need to slow down to allow damaged neurons, joints, and muscles to rest. Management of PPS includes measures to both control and relieve existing symptoms.

Conserving Energy

Energy conservation techniques that can lead to a noticeable decrease in fatigue, weakness, and pain include:

- Rest periods
- Stress management and relaxation therapies
- Maintenance of a healthy weight
- Use of adaptive equipment (braces, scooters)
- Avoidance of strenuous exercise or physically demanding activities

However, staying active is still important. Strengthening exercises that do not cause fatigue and excessive stress on joints may be helpful. Simple stretching and strengthening exercises may be recommended.

Relieving Pain

Physiotherapy (ice applications, heat, and ultrasound) may reduce joint and muscle pain. [Acetaminophen](#) and other nonsteroidal anti-inflammatory drugs (NSAIDs) help reduce muscle and joint pain. There are also other drugs that doctors are studying.

IV immunoglobulin, a solution of concentrated antibodies, treats the inflammatory mediators present in patients with PPS and may be helpful in some patients in improving quality of life. However, the evidence is mixed on whether it improves muscle strength and pain.

Breathing and Swallowing

Patients with breathing and/or swallowing difficulties may find respiratory treatments, diet modification, and instruction in swallowing techniques to be useful.

How Do You Know if You Have PPS?

It is difficult to diagnose PPS because there are no definitive tests, and the typical PPS symptoms may also be caused by many other diseases, including:

- Pulmonary, cardiac, hematologic (diseases of the blood and blood-forming organs), or endocrine diseases
- [Cancer](#)
- Chronic infection
- [Depression](#)
- [Fibromyalgia](#)
- [Rheumatoid arthritis](#)
- [Osteoarthritis](#)
- Amyotrophic lateral sclerosis (ALS) (Lou Gehrig's disease)
- [Multiple sclerosis \(MS\)](#)
- Parkinson's disease

As a result, the diagnosis of PPS is a diagnosis of exclusion, meaning that a doctor can only diagnose PPS by eliminating these other potential causes of the symptoms. In general, a doctor may suspect PPS in a polio survivor if the person is suffering from new muscle weakness, generalized or muscular fatigue, or pain involving the muscles and/or joints, and has experienced at least 15 years of good

health (ie, muscle functions have not deteriorated) since recovering from polio.

Even if these criteria are met, your doctor must still make sure that your symptoms are not caused by other medical conditions. Fibromyalgia, a musculoskeletal disorder that can cause generalized pain and tenderness as well as fatigue, is frequently seen in polio survivors and may sometimes coexist with PPS. If you are found to have another condition that causes PPS-like symptoms, this does not rule out the possibility that you may also have PPS.

If you have had polio, you owe it to yourself to get a second opinion.

RESOURCES:

National Institute for Neurological Disorders and Stroke

<http://www.ninds.nih.gov/>

The Post-Polio Task Force Information Center

<http://www.post-polio.org/>

RESOURCES:

Ontario March of Dimes

<http://www.marchofdimes.ca/>

Post-Polio Awareness and Support Society of British Columbia

<http://www.ppassbc.com/>

References

DynaMed Editors. Postpolio syndrome. EBSCO DynaMed website. Available at:

<http://www.ebscohost.com/dynamed/>. Updated March 15, 2011. Accessed May 13, 2011.

Farbu E, Rekand T, Vik-Mo E, Lygren H, Gilhus NE, Aarli JA. Post-polio syndrome patients treated with intravenous immunoglobulin: a double-blinded randomized controlled pilot study. *Eur J Neurol*. 2007 Jan;14(1):60-65.

Gonzalez H, Sunnerhagen KS, Sjoberg I, Kaponides G, Olsson T, Borg K. Intravenous immunoglobulin for post-polio syndrome: a randomised controlled trial. *Lancet Neurol*. 2006; 5(6):493-500.

Kaponides G, Gonzalez H, Olsson T, Borg K. Effect of intravenous immunoglobulin in patients with post-polio syndrome—an uncontrolled pilot study. *J Rehabil Med*. 2006 Mar;38(2):138-140.

Ragonese P, Fierro B, Salemi G, et al. Prevalence and risk factors of post-polio syndrome in a cohort of polio survivors. *J Neurol Sci*. 2005; 236(1-2):31-35.

WHAT WILL THE NEIGHBORS THINK?

By Millie Malone Lill

If I had a dollar for every time I heard that phrase, “What would the neighbors think?” I would be so wealthy I could drive that beautiful fully handicapped accessible van that I drool over in the ads, rather than my ancient but still serviceable Windstar.

I've been to many polio conventions and conferences and support group meetings. Every time I see someone hobbling along, obviously in pain, using no assistive devices at all, I ask why they aren't using

a wheelchair or at least a cane. This is the answer I consistently get:

“I don't want to use my walker/cane/crutches/wheelchair in public because, well, what would the neighbors think?” In the first place, what other people think of you is none of your business. If these neighbors are the kind of people who would make fun of you for using the tools you need to live, it is very unlikely they would ever be friends of yours. In that case, it doesn't matter a fig what they think. Why would you care if some bigoted supercilious person disapproves of your devices?

On the other hand, I believe your neighbors would a.) be slightly interested to see you using your tools and then forget about it and go on with what they were thinking about before you left your house, or b.) they would be relieved that they don't have to worry so much about seeing you fall. Most people are too busy with their own lives to think about the neighbors much. And those who do think about them are usually good hearted souls who would prefer not to have to scrape you up off your sidewalk if it could be avoided.

There is a wide spread, but totally false, thought process that goes like this: If I don't use my crutches/cane/walker/wheelchair to get around, I won't look disabled. I'll look like everyone else. This is true usually only if “everyone else” is drunk. Trust me, if you need a cane or a walker or crutches to walk, the chances are very good that without them, you lurch from side to side or you limp badly. Even the best case scenario has you looking at the ground so you don't trip over something like an uneven sidewalk, a pebble, or your own shadow. Don't believe me? Have a trusted friend make a short video of you walking away from them.

So what is the answer? Use your assistive devices. I personally do not like the use of crutches and canes because I fear you will ruin your arms and hands. Arms are not designed for weight bearing like legs are. Also, I feel it is easier to get along without the use of your legs than without your arms, shoulders and hands. You can transfer from wheelchair to bed or other chair if you don't wear your arms and shoulders out. If you haven't crippled your hands with crutches, canes or manual wheelchairs, you can tend to your own hygiene. I feel that is very important.

There will always be a few ignorant people (and by ignorant, I don't mean stupid, I mean uninformed) who will try to tell you that using a power chair makes you lazy. They may even say something totally stupid like “Well, of course, once you start using a wheelchair, you won't get out of it because everything is so much easier from a chair.” These people should be made to use a chair for 24 hours. Maybe they could show me how easy it is to do laundry from a chair like I do. Let's see, put the basket on your lap, maneuver close enough to open the apartment door, switch hands so you can use the hand that is used to run the joystick to open the door. Stick your foot in the slightly opened door and pull back while backing up the chair, watching out not to back into anything. Use your elbow to hold that door open as you go through. On reaching the laundry room, do the same thing again, but this time, since the laundry room is much smaller than your apartment, you have to somehow manage to turn on the light, swivel around the door so that you can close it, find a spot to set the laundry basket and then use the washer. Trust me, using your chair is not making you lazy. It is much much harder to do most things from a wheelchair as opposed to being able to walk, but if you don't save your remaining motor neurons, those tasks quickly go from difficult to impossible.

In short, don't worry about the neighbors. They can take care of themselves. You do what you know you need to do to take care of you.

WEB CORNER

Nigeria battles to beat Polio and Boko Haram

<https://www.theguardian.com/global-development/2017/may/07/nigeria-polio-vaccination-boko-haram>

Best ever folding mobility scooter

<https://movinglife.com/>

Slide show: What is inflammation?

<http://www.webmd.com/women/ss/slideshow-what-is-inflammation>

Current strategies for eradication of polio.

<https://www.slideshare.net/preetirai589/current-seminaar-on-polio>

Woman who uses a wheelchair uses her story to inspire the world

<http://www.transfermaster.com/blog/view-post/How-Wheelchair-Bound-Woman-Is-Using-Her-Story-to-Inspire-the-World>

Japanese Researchers Develop New Mind Reading System

<http://www.transfermaster.com/blog/view-post/Japanese-Researchers-Develop-A-New-Mind-reading-System>

Breathing and neck pain video

<https://www.bing.com/videos/search?q=lymphatic+yoga+breathing+techniques+back+neck+pain&view=detail&mid=C491DA0DD789CA346A84C491DA0DD789CA346A84&FORM=VIRE>

Fibromyalgia Mystery Solved!

<http://fibromyalgiaawareness.info/2017/04/18/fibromyalgia-mystery-finally-solved-researchers-find-main-source-of-pain-in-blood-vessels/>

Too Early for Flowers, a Polio Mother's Story

https://www.amazon.com/dp/B0088TREA4/ref=tsm_1_fb_lk

The Benefits of Having Friends With Similar Disabilities

<http://agerrtc.washington.edu/node/291>

Other Polio Newsletters

<http://www.papolionetwork.org/>

<http://www.post-polio.org/>

<http://www.sunnyrollerblog.com/>

<http://www.poliosurvivorsnetwork.org.uk/>

<http://www.atlantapostpolio.com/>

A Little Bit of Humor

Subject: Grandma Still Drives

Grandma is eighty-eight years old and still drives her own car. She writes:

Dear Grand-daughter,

The other day I went up to our local Christian book store and saw a 'Honk if you love Jesus' bumper sticker ..

I was feeling particularly sassy that day because I had just come from a thrilling choir performance, followed by a thunderous prayer meeting. So, I bought the sticker and put it on my bumper.

Boy, am I glad I did; what an uplifting experience that followed.

I was stopped at a red light at a busy intersection, just lost in thought about the Lord and how good He is, and I didn't notice that the light had changed.

It is a good thing someone else loves Jesus because if he hadn't honked, I'd never have noticed.

I found that lots of people love Jesus!

While I was sitting there, the guy behind started honking like crazy, and then he leaned out of his window and screamed, 'For the love of God!' 'Go! Go! Go! Jesus Christ, GO!'

What an exuberant cheerleader he was for Jesus!

Everyone started honking!

I just leaned out my window and started waving and smiling at all those loving people. I even honked my horn a few times to share in the love! ; There must have been a man from Florida back there because I heard him yelling something about a sunny beach.

I saw another guy waving in a funny way with only his middle finger stuck up in the air. I asked my young teenage grandson in the back seat what that meant.

He said it was probably a Hawaiian good luck sign or something.

Well, I have never met anyone from Hawaii , so I leaned out the window and gave him the good luck sign right back.

My grandson burst out laughing. Why even he was enjoying this religious experience!!

A couple of the people were so caught up in the joy of the moment that they got out of their cars and started walking towards me. I bet they wanted to pray or ask what church I attended, but this is when I noticed the light had changed. So, grinning, I waved at all my brothers and sisters, and drove on through the intersection.

I noticed that I was the only car that got through the intersection before the light changed again and felt kind of sad that I had to leave them after all the love we had shared.

So I slowed the car down, leaned out the window and gave them all the Hawaiian good luck sign one last time as I drove away. Praise the Lord for such wonderful folks!!

Will write again soon,

Love, Grandma