

# Starting Strength

## Strength Training and Stroke Recovery

by

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It was Thursday, October 29<sup>th</sup>, 2008 and I had evening no-gi practice at my local Brazilian Jiu-Jitsu club. My neck had been sore for a few weeks, but anyone who has spent any amount of time training in a grappling sport knows that this is nothing new – you do your neck bridges and get stronger, then next time you get thrown you won't tweak your damn neck. What I didn't know was that this time there was a bomb waiting to go off inside my head.

Some weeks earlier, most likely during a similar grappling session, my neck was forced into a compromising position, just as it had been many times before, but this time would be different. The smooth interior lining of my left vertebral artery had torn, starting at the C1 vertebrae and stopping at the base of my skull, a scant millimeter before entering my skull.

Your vertebral arteries normally originate at the subclavian arteries which lie below your collarbones, and from there they run right up either side of your spine from C6 or C7 until they enter your skull, where they provide blood to a good chunk of your brain. These vertebral arteries are actually threaded through a little bony process on each and every vertebrae as they move up towards your skull, and as you can imagine, every time you twist your neck and rotate those vertebrae on axis, or flex your neck forward or backward the artery is put under tension. I would later learn that the injury I had suffered is known as vertebral artery dissection, and it is very serious. If the dissection had continued only a millimeter further on into my skull, it would be known as an intra-cranial dissection, and my life would be in immediate danger. I had just dodged my first bullet, and I didn't even know it.

This type of injury often presents itself as a headache, balance and motor control issues, along with various other neurological indicators, but aside from some minor neck soreness, my injury had decided to remain asymptomatic. A little sore neck? No big deal. My traditional approach to nursing a sore neck started with a trip to the chiropractor for a routine adjustment, and this time would be no different. Pay attention to this part, as it's very important: *a chiropractic neck adjustment is possibly the absolute worst thing imaginable a person could do to themselves while walking around with a dissected vertebral artery.* The problem is, it's exactly what you feel like you should do.

If you're a "neck-cracker" like I used to be, you'll know what I mean. You put your palm on your chin and twist, cracking your neck to both sides and bam! – instant range of motion and tension relief. If self-adjusting didn't cut it, I'd go see a Chiropractor: they have a souped-up version of 'neck-cracking' that generally did the trick and got me back in the game. Neck adjustment probably isn't a problem for most healthy people with supple, flexible arteries, but combine my dissected artery with the sudden twisting motion of a chiropractic neck adjustment and it's a recipe for absolute disaster.

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Of course, I had no idea about any of this at the time, so I cracked my neck like crazy, and went to my Chiro and had him crack it too. Amazingly, my injury was not significantly worsened and I walked out of his office feeling great. I had just dodged a second bullet, and again I was oblivious.

Over the next three weeks I carried on with business as usual until finally at a Thursday night no-gi practice everything went all to hell. We had finished our warm up, and we were partner-drilling transitions into arm triangles. An arm triangle is a bread and butter choke that any Judo or Jiu-Jitsu player with a month or two of experience is familiar with. If the arm triangle is done right it can be a relatively painless, rapid blood choke that sneaks up on you – it just depends on who is applying it, and how they manage to slap it on you. One second you think you're doing fine and you haven't been caught – you think you can ride it out while your opponent fatigues and eventually lets go – but the next thing you know, you wake up staring at the ceiling, seeing stars after having been choked unconscious. My friend Jon had set up just this sort of arm triangle on me, and I knew it. I fought for a moment, trying to improve my position and escape, but it was no use – he had me. I waited till my vision started to dim before I tapped, I wanted to make him work for the submission rather than just giving it away, but the instant he let go after I had tapped, I knew something was wrong. I wasn't dodging any bullets this time.

As I lay on my back looking at the ceiling a lot of strange things happened at once. The world started spinning, and not the kind of spinning you used to do on Dad's office chair as kids, this was a whole different kind of fun. The room was turning so hard and fast that I actually rolled over onto my stomach and dug my fingers into the mat to save myself from being thrown into the gym wall and squashed like a bug; it was like being inside a spinning centrifuge. I lay there on my stomach for a while with my eyes clamped shut tight, trying to get my bearings, and eventually realized there was no problem with the room itself, the problem was with me.

I tried to tell someone I was feeling a little dizzy, but the words wouldn't come out. I could see and hear the words in my head, but all that came out of my mouth was gibberish. I was starting to have trouble thinking straight, and the only thought I could focus on was that I had to get up and get my ass off the mat. I tried to stand, but my legs wouldn't respond and the violently spinning room made it impossible to keep my balance the first time I managed to get up to my knees. After a few more aborted attempts at standing, I decided to crawl myself to the edge of the mat, but even this was becoming rapidly difficult for some reason. It like felt someone had hung a couple of forty-fives on my left arm and shoulder, and they just kept adding more weight as I crawled.

I managed to make it to the edge of the mat before nausea from the still-spinning room finally got to me, grabbed a garbage can and spent the rest of practice woofing up my cookies. By now, it had been over an hour, and I was beginning to recover slightly. The puking had stopped and I could form proper sentences if I tried hard, but I still couldn't walk, I was having trouble seeing, and my left side felt sort of frozen and numb.

Now, you're probably saying to yourself, "You stupid asshole, I already know exactly what happened to you, how could you not realize what was going on?" and you're right. I should have known I was in deep shit, and everyone around me should have too, but I was a strong 30-year-old male with no previous history of health problems. Nothing serious could ever possibly happen to me, so I insisted that someone drive me home so I could shower, go to sleep, and recover from whatever the hell was happening to me and get back to practice next week. I wasn't thinking rationally – I was as stupid and invincible as I ever had been, and I was about to learn a few things.

I was taken home, and left in the care of Linda, my girlfriend of 7 years. She pleaded with me to let her take me to the hospital, but I wouldn't give in – nothing was wrong. My speech had

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started to return, my balance had improved to the point that I could kneel on my own, and I was only dry heaving once or twice every ten minutes, rather than full time. I decided that things were really looking up for me, and a quick shower and sleep would fix me right up. I still laugh when I think back on this, the pivotal moment when I realized maybe I should seek help: *the shower didn't feel good*. When the hell does a hot shower not feel good? I've been all kinds of sick, hurt, beat up, bruised and sore, and not once in my life has a hot shower not made me feel a little better, but it wasn't working. Finally I began to be concerned for myself. The lights in the bathroom seemed too bright and the sound of the shower was deafening. I could feel each and every drop of water hit my skin, and it was painful. It was as though all my senses had been amplified a thousand times.

With Linda's help I got cleaned up and into bed and two more times that night I had complete meltdowns, just like the very first one I had on the mat earlier in the evening. Linda didn't sleep at all; she sat by the bedside, probably hoping I wouldn't die, but more likely wishing I wasn't so damned stubborn and would allow myself to be taken to the ER.

At some point in the early morning I stopped throwing up for long enough to fall asleep or pass out and I awoke feeling like fresh hell. I knew this feeling immediately: I was badly dehydrated from throwing up all night, so when Linda begged me again to go to the hospital, I finally relented. I knew an IV drip would probably be needed to fix myself up. I'm not a super small guy – I'm 6'1" and 200 pounds, and my poor girlfriend is about 110 pounds, so she called my brother on his way to work to help drag me out of bed, toss me in his truck and haul me down to the University Hospital emergency room.

The security guard working the door at the ER gave me the stink eye, probably figuring I was a drunk by the way I had to hang on Linda to get to the door, but at least he got us a wheelchair so I could be moved around a little easier. The ER triage nurse took all my info and accurately marked me as a proper emergency, so it wasn't long before I was moved into a room, hooked up to a saline drip and had my blood taken. I had a few raised eyebrows from various technicians and nurses who asked me my story, and it was made worse because I was pretty incoherent, so Linda had to speak for me quite a bit.

Eventually the on-duty ER Doctor came around to see me and hear my story, and luckily he was a former wrestler, so he understood exactly what I was doing on the mat before it all happened. He diagnosed me as being dehydrated and told me my blood work revealed screwed up potassium levels, probably from hard exercise followed immediately with 15 hours of straight vomiting. Go figure. A potassium drip was hooked up and I immediately began feeling better, but my ER doctor was not. After shining a penlight in my eyes, checking my reflexes and listening to me talk for a few minutes, he ordered me pumped full of contrast dye and sent under the CT scanner. This is where the story gets interesting.

After the CT scan, they rolled my gurney back to a quiet room and let Linda sit with me while we waited for the CT results. I was thinking to myself, "Jesus Christ, I hope I don't have a concussion or something, that would be bad news," and right about then, the door opened and my ER doctor in his scrubs walked in with no less than three other white-coated doctors. These dudes were trying for some serious impact here, and they had my attention. One of the doctors, who is now my neurologist, shook my hand and in a cheerful voice said, "Hi there Mr. Peters! You've had a stroke – several in fact!"

At this point, I distinctly remember turning to Linda in front of these goofballs and saying, "Holy shit," but I'm not sure that's exactly what came out. In any case, I was finally made aware of the dissection of my left vertebral artery. Over the weeks since I initially injured it, a blood

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clot had been forming at the injury site as my body tried to heal itself, much as a scab would form over an open-air cut or scrape. Eventually, that clot became unstable, most likely due to the changes in arterial blood pressure from the arm triangle choke I was put in. A part of the clot dislodged and began rapidly moving through my vertebral artery into my brain, where it eventually caused a blockage. I subsequently suffered a series of ischemic strokes in my cerebellum as the blood supply was cut off. Without constant blood supply, the tissues of the brain begin to die in a matter of minutes.

It turns out your cerebellum is a rather important piece of hardware. It regulates motor control, balance, and muscle tone as well as taking part in vision, speech and a lot of other very important activities. When you consume alcohol and get really good and liquored, your inability to perform fine motor skills, your sluggishness, slurred speech and general uncoordinated movements are directly due to alcohol's effect on the cerebellum. My movement, balance, vision, and speech now permanently resembled someone who had been on a serious bender. The ER security guard was right to be giving me the stink-eye, after all.

The first night I spent in the hospital I couldn't sleep. I had been told a few hours earlier that the first 48 hours following a stroke in a person my age were critical. The brain can swell after an injury like a stroke, much as a torn muscle might swell, but inside a young person's skull there is nowhere for the pressure to go. As you age, your brain actually shrinks, so when the elderly suffer strokes, there's some wiggle room for their brains to swell with less ill effect. If you're a young person, there's no space, so the only option to relieve pressure is to cut a section of the skull away, and remove a portion of the injured cerebellum until the swelling subsides. This is serious shit, and I wanted nothing to do with it, so I couldn't sleep. A graveyard shift nurse noticed I was awake, took pity on me and brought me a Dixie cup of chocolate ice cream, but my hands didn't have the strength to grip the paper top to peel it off, so she had to do it for me. I'm 30 years old, and I can't open my own ice cream cup. This was my first perfectly lucid realization that my life was changed.

I spent Thanksgiving in the hospital that year, hooked up to a heparin drip that kept my blood unable to effectively form clots, and thus less likely to suffer another ischemic stroke. I was roomed in the cardiac wing, as the neurology wing was all filled up, and my roommates were three fellows who had all just received either angioplasty or bypass surgery. As a matter of course my roommates were each given massive tomes of information regarding all aspects of heart health and recovery, so naturally when the nurse came around I asked her for some reading material regarding stroke. I work as a programmer for a manufacturing company, and I like to take in as much information as possible whenever I'm dealing with any new problem. I decided I should approach this situation the same way: get my hands on information and work the problem to improve my situation.

It turns out that there was not a single pamphlet, booklet or photocopy of stroke-related material that didn't require me to be an octogenarian or completely vegetative. The assumption was that you were wheelchair bound, so all the 'rehabilitation' exercises were performed sitting: sort your pills into piles, shuffle decks of cards, stack coins, tie knots in string and so forth. The bulk of the reading material dealt with coping: How to construct a reaching stick to get your cereal down from the top shelf, how to get your ass out of the wheelchair and into the shower without breaking a hip, and so on and so forth. Don't interpret this as disdain for these sorts of things, they just weren't meant for people like me, but I soon found out why there was no alternative.

Statistically, "young people", or people under the age of 50, don't represent a large enough chunk of stroke victims to be relevant. There just isn't enough information available to health professionals regarding the demographic of "young" stroke victims, let alone effective strategies for treatment or rehabilitation. This is what I was told by my own neurologist and neurosurgeon, as well

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as several student doctors. At the time it didn't seem possible, and to this day it still bothers me.

I couldn't get any firm answers about anything, from anyone: Would I stroke again? Would I ever regain my balance, strength or coordination? Would my memory improve? Will I die an early death because of this? They won't commit because they just don't know, and I came to the realization that you *must be absolutely and aggressively proactive about your own well-being and recovery if you're injured*. You simply can't always rely on healthcare professionals to know and do what is best for you. The majority of the time they likely do, but not always. If they're balking and stalling, like they did with me, it's my firm belief that they probably don't know what the hell they are talking about, and they just want you to disappear off their radar. It's not their fault – they just don't have any information that can help you. I figured this out pretty quickly after shooting questions at a various doctors, so after a few days I stopped asking.

When I was discharged, there was snow on the ground, and I was sent home with a lifetime ban on contact sports, a bagful of syringes and heparin, a referral to a rehab therapist, a revoked driver's license, and doctor's orders to stay home from work for a few months as well as the sage advice to “take it easy” – whatever that meant.

The next year of my life was fairly nondescript. I got back to work. I got my driver's license back despite having permanently lost part of my peripheral vision. I spent countless hours in therapy, and could walk and talk normally. My memory and fine motor skill improved. Despite all these improvements, several nagging problems remained. I was weak – really weak. Carrying in the groceries was a serious undertaking for me. My balance was terrible too, and this was possibly more difficult to manage than being weak. I couldn't stand up and put on my shoes – I had to sit down. The more tired I was, the worse my balance was, and man, did I tire out quickly! I had a difficult time concentrating on tasks, and it was even worse trying to focus or be at ease in loud, bright or crowded areas. About a year ago, I felt like my recovery had stagnated or plateaued, so I took it upon myself to find my own answers and try to improve my recovery beyond the methods I'd been given.

I focused on strength first. I had been strong once not so long ago, and it ate at me that I no longer had the strength to do what might be needed, should the occasion arise. Could I save Linda if I needed to? Could I pick her up and carry her? Could I defend myself? Could I save myself? Probably not. I was weak, and I knew it, so I started looking for a solution. I had never done any real focused strength training before. All of our activities on the mat were largely based around technique, conditioning and endurance, but I had never felt weak, so strength was never a focus for me, but now it was crucial.

I started researching basic strength training, and as you can imagine I found a lot of easily identifiable bullshit. When I eventually came across Rip and the Starting Strength program, it rang true. Despite what you might think of me after reading the story of how I arrived at this point, I place a great value in critical thinking and the application of logic and rational thought. Another requirement of any potential program that I might adopt was that it must be simple and efficient, and progress must be measurable. As I mentioned before, I work in manufacturing, and efficiency is paramount. We live and die by efficiency in my industry, and I don't see any reason why other facets of life shouldn't follow the same rule and reap the same benefits. I read through the chapter “Strength: Why and How” online, had a look at a very basic beginners program, and ordered a copy of *Starting Strength* 2<sup>nd</sup> edition for myself from Amazon in short order.

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I'm not going to lie – my first few months on the program were pretty grim. My balance was effectively destroyed. Any notion of holding a barbell overhead in lockout for instance, was pure fantasy at that point. Stabilizing any sort of weight at arm's length sent me into a balancing act that looked sort of like a guy balancing a chair on his chin. I practiced the movements with a dowel at first, and then progressed to an empty bar, and as the connections started to be made, I began loading the bar. It was humbling, and a tremendous blow to my ego. It was also pretty damned embarrassing, because unless you knew me personally, I just looked like a regular guy. I didn't look weak, certainly not weak enough to have trouble with an empty bar, but it was all part of the process, I suppose. I had to start off extremely slow with the program. As I mentioned earlier, I became tired extremely quickly, and I still do, in fact. This is a hallmark of head injury.

I chose a tried-and-true program of Monday, Wednesday, and Friday workouts with 3 exercises performed each session. The first exercise performed every session would be Squats. The second exercise would alternate between Bench Press and Overhead Press and the third exercise would be Deadlifts on Wednesdays, and Pullups or Chinups on Mondays and Fridays. All my work sets were 3 sets of 5 across, with the exception of Deadlifts which I performed for 1 work set of 5 across. I'm sure anyone who is the least bit familiar with Starting Strength is very familiar with my program.

The first thing I concentrated on, unsurprisingly, was the squat. I wanted to regain my balance and develop strength, so squats seemed a reasonable choice to address both concerns. I was pretty sceptical of my ability to squat 3 days per week, but it turned out that even in my sorry state I could handle it. Squats were performed at the beginning of each session Monday, Wednesday and Friday. I did, and still do, a lot of warm-up sets to get into a groove or cadence, and gauge my form and performance before attempting 3 work sets of 5 across.

In the beginning, I had trouble coming out of the hole squatting an unloaded bar. I can recall several workouts where trying to come up out of the very bottom of my squat I'd lose all sense of where I was in space and start coming forward on my toes. Have you ever been woken suddenly, and for a moment you don't know where you are or what's going on? It felt sort of like that, but applied to my balance and spatial awareness. It was as though my equilibrium would just forget what it was doing for a moment, and I'd end up with the bar on the safety pins and me on my ass. The answer was always the same though, and it still is for me: drop the weight down, go back and review my form against the book and any videos that I could find, and start very slowly loading the bar again. It turned out that bar position was a real issue for me. I had a hell of a time keeping my balance at the bottom with high bar squats, but I could remain stable with low bar squats. I scoured the web for form check videos, made the changes to my form and moved forward.

I missed a lot of sets back then as I wasn't always able to focus properly on the workout, and my form and energy levels were hit or miss, but after a few months I started to develop a better awareness of how I was feeling under the bar on a given day. I learned when I could bump it up a few pounds, and when I would have to start backing off, or when I should just pack up and go home. This process of retraining my brain and body to function under load was difficult, but once those reconections were made, they stuck.

As the days and weeks went by, and I became accustomed to the task, my numbers started to crawl upwards, and I do mean *crawl*. I wasn't making 10 pound jumps each workout as some novice lifters might, but my situation was different, so I resigned myself to accepting smaller incremental jumps. My gym didn't have 2.5lb or 1.25lb plates, so I ordered my own and took them with me to the gym. This investment was probably one of the best I have made in this endeavour, as the

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ability to micro-load the bar allowed me to continue making progress on days when I wasn't necessarily 'in the zone.' My personal motivation to continue lifting was closely tied to being able to see those lifts increase week by week, so I had to set myself up in a position to succeed. I kept a small Moleskin book with dates, exercises, and poundages. Personal bests got a star beside them, while missed attempts were circled in red pen. I really believe tracking my progress like this was a large contributor to my success.

Over the last year I've grown stronger – much stronger – but more interesting, and arguably more important given my situation, is that *my balance and coordination have improved by leaps and bounds*. When I get tired, my balance still goes out the window, but if I stay rested and I don't miss too many workouts I feel as good as I did prior to my accident. I feel strong and confident under the bar and in my day to day activities: I can stand on one foot and keep the door open with my other foot while my hands are full, and I can grab a box full of shifting books off the top shelf without careening into whatever or whoever happens to be nearby. These are very mundane tasks that I had taken for granted, but when they're stolen from you, you realize how important they really are in your day-to-day life.

The progress I made in improving my balance was very slow, and very gradual, as it is for many who've suffered brain injuries. Week by week, if I was observant, I would notice very small, seemingly insignificant changes that were signalling improvement, even during a missed set. For instance I might miss two consecutive press sessions, yet I would notice that I didn't lose my balance and take a step forward during the next session, where I had needed to during missed sets last week. My elbows might shake and flare a little less during bench press sets, or it was a little easier to touch and go during deadlift sessions, where previously I had to stop, put the bar down and completely reposition myself in order to keep my form solid. Even things as small as not having to lean against the rack because of dizziness between difficult back squat sets were telling me the improvements were coming, but they were slow and I had to *learn to be patient* – a topic I could write a great many pages about by itself.

My ability to concentrate on a given task has also improved, as has my ability to block out extraneous noise and motion that would have driven me up the wall two years ago. Walking through a crowded shopping mall, or trying to talk to my girlfriend in a loud, busy restaurant was an exhausting and confusing task after I got out of the hospital, but my ability to cope has increased a thousand-fold. This improvement came as a complete surprise to me, but it was one of the most easily identifiable. I firmly believe this is due to the repetitive mental exercise of preparing for and performing difficult sets across. I don't have absolute proof that barbell training is the prime mover in these unexpected improvements, but if it's a coincidence it's a big one.

Right now I'm squatting 205, deadlifting 275 and bench pressing 135. These numbers aren't something that most guys would ever be proud of, but for me they represent a world of change. These numbers for me represent a net gain of 615 pounds in those lifts over the course of one year, as I was literally starting at nothing, or very close to it. My current goal is to learn the power clean movement, and begin incorporating it into my workouts.

There was a time when a set of stairs with no handrails was a serious problem, and carrying in the groceries was a feat of strength, but the program has changed that and made a noticeable difference in my life. I was hurt, and the program made me stronger. And getting stronger has made my life better.

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