

# Starting Strength

## Strength Training and the Firefighter: An Extra Ten Minutes of Air

by

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“Many don’t understand how dark it is inside a burning house,” Brent said. “You simply move toward the glowing fire – you are stumbling and sometimes falling over what’s left of somebody’s stuff. It is always interesting to go back in afterwards, to see what you got hung up on. But since I’ve been training, I do have an extra ten minutes of air. That’s been helpful.”

Brent is a volunteer firefighter in his community. He is an older guy in his mid-forties. He has a full time job, an hour commute both ways, stays active with his family, manages a small farm, hunts, shoots and cuts wood. On top of regular life, for the past couple of decades he has spent his spare time going into burning buildings or cutting the twisted remains of a vehicle away from someone after they have flipped their car and slammed into a tree. I first met him several years ago at the gym, prior to becoming a Starting Strength Coach (SSC).

When I got back from The Starting Strength Seminar in 2012, I was jacked up and looking at everyone in the gym a bit differently. For the most part I was, and still am, perfectly content to keep my mouth shut and let them continue on their path to destruction. However, my friends aren’t so lucky, and I am quite happy to voice my opinion on their training.

Brent has always been a strong guy, benefiting from good genetics and a lifetime of hard work. At 6’ 250 lbs, he had a decent bench and would occasionally jog on the treadmill. When I got back from the seminar in Atlanta, I learned he had a copy of the original book, *Starting Strength: A Simple and Practical Guide to Coaching Beginners*. You know, the spiral bound one, with the little illustrations on the corners of the pages that move like an old-time cartoon when the pages are flipped.

He trained upper body only – he didn’t squat or deadlift. The reasons he detailed were two significant injuries. The first occurred in his early twenties from a skiing crash that twisted his knee and tore some stuff. He wrapped it up, and because he had no insurance at the time, he just limped along. Twenty years later, his knee still hurt and was unstable. Sudden changes in direction or shifting weight when walking or running would cause the knee to give out and send him toppling to the ground.

The second injury was from a ten-foot fall that fractured the heel on his left foot. This caused

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a slight limp and hurts more often than not. Squatting, Brent said, made his knee worse and his heel hurt more. He didn't squat or deadlift because he was concerned he would cause more damage to his old injuries.

After explaining the process to him and discussing my experiences at the seminar, he wanted to give those lifts another shot. I started coaching him, and we proceeded very carefully. We started light with the best form he could manage, and added weight, a little bit at a time.

Using the Starting Strength Model, Brent has gotten stronger. The old injuries still cause some issues, but he has made progress and continues to do so. According to him, the most positive change is his knee; it no longer aches constantly, and most importantly, hasn't dumped him on the ground in a long time.

Training squats correctly have made the muscles around the joint much stronger, stabilizing the knee. Training the squat, deadlift, press and bench correctly has made the entire system of levers and motors stronger and more efficient, better balanced and more stable, and have increased Brent's proprioception.

As a volunteer firefighter in a rural community, most of his calls to service are either one- or two-story residential structure fires, brush fires, or motor vehicle accidents. The gear a Firefighter wears is called his Personal Protective Equipment, (PPE) or "bunker gear." It consists of heavy fire-resistant pants, a coat, boots, gloves and a helmet. It weighs about twenty pounds. The Self Contained Breathing Apparatus (SCBA) worn when entering a burning structure brings the weight of this ensemble to between seventy and eighty pounds. The firefighter may also be carrying an ax, a chainsaw, or dragging a heavy hose.

If the firefighters hope to save a residential dwelling it is during the initial push into the burning building – generally accomplished within the first five to ten minutes. The faster the fire is knocked down, the less opportunity the fire has to defeat the structure. The key is getting as much water as possible where it needs to be in the shortest amount of time.

Dependent on their PPE to protect them and the air on their back to breathe, the firefighter enters the burning structure and attacks aggressively. They constantly move forward, knocking the fire down, the smoke and the darkness obscuring their vision, they scan for potential exit paths and for any indicators of structural collapse, all while crouching low or crawling, sometimes stumbling and falling over unseen obstacles they continue to move forward. When their air gets low, an alarm sounds in their face mask, and it is time to go.

After the initial knockdown of the fire, firefighters must overhaul the structure and confirm the fire is completely extinguished. They may already be worn out from knocking the fire down, and now they are in the building making sure the fire is out. Constantly looking for signs the house may collapse, mindful of potential exposed live wires, toxic gases and smoke limit vision and necessitate wearing the SCBA. The mask limits vision even more. This is a dark, ugly, dangerous environment with tired people using power tools and axes.

Prior to beginning the Starting Strength program it was common for Brent to get between 20-25 minutes of air from a 45-minute SCBA cylinder. In just a couple of months of efficient barbell training he got stronger, a little bit at a time, and increased the amount of time he can work while on compressed air. He went from the original 20-25 minutes to 30-35 minutes on a 45-minute tank.

Getting stronger meant his ability to exert maximum force increased. Producing sub-maximal force for multiple repetitions got easier. Being stronger has increased his work capacity and it doesn't require as much effort to do the same work as before. Part of the benefit is not sucking wind.

So, when he is in a burning building, and he can't see and all he can hear is the sound of fire,

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he gets an extra ten minutes of air. In a burning building, with close to zero visibility, crouching and crawling low to avoid the superheated air, Brent can do more. He said he now uses air more efficiently than people half his age and is able to stay in the fight longer, he watches as younger, smaller, and weaker firefighters retreat, because they are running out of air.

When a vehicle crashes, or rolls and tumbles it deforms and wraps around the occupants. The vehicle's crumple zones absorb energy and collapse around the passenger compartment. Some occupants are "ejected" – a nice word for being launched through a window or door to skid and tear, and potentially have limbs torn off.

And some are trapped. Sometimes the most hideous wreck, one so bad the make and model of the car is impossible to distinguish, still has life inside. Cutting the vehicle out from around them is called "extrication."

In a serious accident, the dash often wraps around the occupant's torso and crushes and pins their legs against the seat. Or maybe it breaks a lower leg and the bones come out of the skin and drive into the dash, getting tangled in wiring and vinyl. The impact can drive the knees back so hard it shatters the hips against the seat back; the tumbling can smash the roof completely flat. If the occupant is unconscious in this tangled mess the scene is quiet, if the person is conscious, the scene is generally not quiet.

It is the Firefighter's job to get the person out of this merging of steel and flesh. He will show up with his twenty plus pounds of protective clothing and either a cutter (30 or 40 lbs.) or a spreader (40 – 60 lbs.), which are specialized hydraulic extrication tools. The typical extrication takes between 5 and 10 minutes, which is normally enough time to remove the doors and peel the roof back. The idea is to cut the vehicle off the person and not the person out of the vehicle. This provides Emergency Medical Services (EMS) the best opportunity to move them without further injury. The goal is to have the victim out and into the hands of EMS in less than 15 minutes.

Every vehicle extrication is different, and the longest one Brent recalls was 45 minutes. It involved a car down in a gulley with the driver's side bent around a power pole, the trapped driver's leg visibly bent in a U shape around the pole. The driver was awake. Brent's increased strength was very noticeable during this drawn-out event.

One has to be strong to cut a deformed car apart with a 40-pound hydraulic tool the size of a vacuum cleaner. To get to a screaming terrified girl begging for help when the door won't budge (despite having cut everything possibly holding it up), to drop the tool and grab that fucker and take a deep breath and hold it, and set your back and pull the door until it breaks loose and skitters down the pavement, one has to be strong.

There is also a very real skill component when fighting a fire or cutting a vehicle off of someone. Both require extensive technical knowledge and experience. But all the skill in the world can be limited in its application if the firefighter is weak. The program has made Brent stronger. He is more stable on his feet and better able to put his considerable hard-earned skill to maximum use.

A common sentiment is "the firefighter has to work the tool and not let the tool work him." Moving effectively in bunker gear, getting back up after a fall, dragging a hose or handling a 40lb piece of hydraulic equipment – often while standing sideways on an embankment and leaning over at some bizarre angle! – all require strength. And don't forget that extra ten minutes of air.

The National Fire Protection Association has written extensive guidance about the number of firefighters and the minimum equipment standards to be observed when responding to a fire or motor vehicle accident. Yup, all sounds good. A volunteer firefighter has already worked all day, driven home,

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and maybe been asleep for a couple of hours when he gets the call. Not everyone is available all the time, and assistance may be a long way away. Often if they want to help, they work with less than the recommended crew.

On one occasion Brent drove the fire engine, hooked up the hose, and started putting water on the flames from the kitchen door before others arrived. Several times he has been the first to arrive at a mangled vehicle. He works a large rural area with a very low population density. He knows the family whose home is burning; he may know the person in the mangled vehicle – or maybe their mom or dad.

From his experience, Brent understands strength is the most important physical element in this unforgiving profession. He argues being stronger is better than being weaker. He trains only the important lifts – squat, deadlift, press, and bench. From having an increased work capacity that gives him an extra ten minutes of air to fight a fire or increased stability, balance and power to rescue someone's daughter or mom or son or dad out of a vehicle, the program has made him stronger, and being stronger has made him better.

Who do you want showing up when you are bleeding out, upside down in a ditch with your car wrapped around you? Would you prefer someone strong or weak?

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**John F. Musser** is a multi-discipline law enforcement, security and training professional with decades of experience in high-level assignments with both the public and private sectors. He believes the Starting Strength Model is of particular value in satisfying the complex physical and mental requirements of law enforcement and security professionals. Given his deep and multifaceted background, Mr. Musser helps promote the Starting Strength solution through presentations, coaching and discussion focusing on the security and law enforcement communities.

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