Exospine: 3 pounds that takes the weight off your back!

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CEOFCO: Dr. Glenn, you are the designer and developer of the Integrated Support Exospine. Would you give us a little of your background and tell us what led to your developing this very important spine support device and the founding of Emerald Touch Inc.?

Dr. Glenn: I graduated from Northwestern University Medical School’s Advanced Standing Program in Respiratory Therapy, and then from Texas Chiropractic College as a Doctor of Chiropractic. Upon graduating I was asked to be the director of the first hospital based Chiropractic clinic in Dallas, Texas. I have been fortunate enough to study and work under five of the world’s leading physicians in different arenas, each one having their own specialty. They were considered the grandfathers of those specialties. I have been staff for several studies such as artificial surfactant for Hyaline membrane disease in premature babies’ lungs. Surfactant is the moisture you have in your lungs that keeps your lungs from sticking together. On a premature baby that is one of the major problems that causes them to fail at developing once they are out of the womb because in the womb there is moisture to keep the lungs from sticking together. It was fascinating work. Back when we were doing this, there was a product called Exosurf, so it is funny I ended up choosing Exospine for the name of my product.

I also worked with patients during artificial heart development back at Dr. Michael DeBakey’s unit in Houston as a respiratory therapist. Dr. DeBakey, was the world-famous cardiovascular surgeon who pioneered such now-common procedures as bypass surgery and invented a host of devices to help heart patients.

As a result of these experiences I was also getting to treat some elite amateur athletes training at The University of Texas, at Austin (UT Austin). As a result of this experience, I was asked to open a clinic at Fort Campbell Kentucky, treating the elite military units. Basically these clinical experiences of treating different injuries and conditions offered me that perfect combination for understanding how the soldiers’ bodies...
were taking accelerated wear and tear of their spine while wearing protective equipment, which they are issued, in order to protect them. It was protecting them, yet it was causing problems, basically stuff that a regular scientist and non-clinical research specialist would miss, because they are not treating the actual injuries. As a result of seeing this and understanding the performance issues for elite athletes (our soldiers are more athletic than people realize) and understanding the wear and tear on their bodies, I simply reverse engineered the effects of what they were experiencing and designed the Exospine to increase their peak performance, increase their cardiovascular endurance, and improve recovery time (when they have gone to extreme exertion) and allow them to function at their peak performance without any type of negative effect on their performance. We were pleasantly pleased with the feedback of Soldiers from Fort Benning’s Maneuver Battle Lab.

CEOCFO: Would you tell us about the Integrated Support Exospine (ISE), and some of the science behind it?

Dr. Glenn: I had an understanding of the acceleration of degeneration in the discs and joints of the spine that both young men and women were experiencing. Some of them in their twenties, had as much degeneration as I had in my forties. Therefore, I knew that the ultimate goal was to remove weight from the structures in the body that were not designed for the load-bearing and place it upon the structures that were specifically designed to carry the most weight. By lifting 100% of the weight off the shoulder girdle itself and placing it upon the pelvis and lower extremities, this allowed greater efficiency for their performance and allowed the torso and the shoulders, to relax rather than being under the stress of the weight. That meant these components would not consume as much oxygen or blood sugar throughout their daily activities which sometimes can be a very long day running into multiple days. This allowed for more efficiency during their mission.

We did not have enough funding for a full “clinically significant study”, so we tested a small group using the VO2MAX stress test, which measured the maximum Volume of Oxygen consumed. Under this test the treadmill is accelerating and increasing the incline every 3 minutes to see how far you can go until the point of failure. We found that not only did we improve the endurance, under extreme stress, by 100% in the phase referred to as the capitulation phase, and the recovery time was significantly faster...in fact seeing their heart rate and breathing rate get back down to a normal baseline before the run, was 20% of the time, in other words five times faster. This was basically later validated not so much in the clinical sense but just from anecdotal feedback from the Soldiers at the Army Battle Lab at Fort Benning.

CEOCFO: What was the initial response from the soldiers?

Dr. Glenn: I had a soldier tell me “that thing looks stupid” and that it would never work. This was during the program of instruction, while we were trying to present it to show them how to use it and when I called him up to the front, I asked him to try it on. I already had one of the Exospines connected to the body armor and I had him put it on and told him to buckle the belt. Soldiers historically have not enjoyed the type of belts that they have been told to wear for all the load bearing systems that the Army has come up with. I kept having to insist that he tighten
the belt. He said he did not like tight belts but once he tightened it and we secured the body armor to his body, I asked him to move around and perform some functional movements. As he jumped around doing different Army combat rolls in front of the audience, tumbling and rolling on the ground, I asked him if he felt weight on the back or his shoulders and he said, “No.” I asked him where he felt the weight and he said it was on his legs.

I then asked him who was the biggest guy present, that he would be willing to carry on his shoulders. We called down a guy that was at least 260 lbs. He threw him on his shoulders and I said to jump around and do whatever he wanted; you cannot jump as well with somebody that heavy on your shoulders but he was trying to mimic an uneven plane moving around by jumping side-to-side and he was astonished. I asked him where he felt the weight and he said that it was on his legs.

At that point I actually lost control of the presentation, as they all came forward hoping to get an Exospine for testing. We were only allowed to give four units per squad and everybody wanted one at that point. Several Soldiers complimented us as the only product company that was really listening to their complaints and had discussions with them on how to meet their needs.

**CEOCFO: How is the ISE worn and why does it work?**

**Dr. Glenn:** It is worn outside the uniform, integrated with the body armor. The body armor sits on the Exospine and it is connected to it so it moves in sync with the Exospine and moves in sync with their body movements. It goes under the body armor to keep and lift 100% of the weight off the shoulders, so whatever they put on the body armor, equipment, what they call mission-specific equipment for whatever they are going to do, radios, batteries, medical first-aid kit, any gear will sit on the Exospine which transfers it to their legs. An army soldier normally carries 45 to 60 lbs. in their Rucksack, and during combat it does not even come close to what they can possibly carry. The goal was a success. The newer versions that we are working on and trying to get manufactured currently break down and can fit into a pouch. You can throw it into the car if you were going to go backpacking, and it can be put together in about five minutes. You can connect it to a backpack, baby carrier, book bag, or lifting straps for work and take off for your day.

**CEOCFO: What sets your Integrated Support Exospine apart from other products on the market?**

**Dr. Glenn:** We actually covered up the belt mechanism on the website, but it swivels at the most important part of movement in the human body and that is at your low back and pelvic junction. Our belt actually swivels freely with no resistance in any direction that the pelvis wants to move, which is why you have to wear the belt tight against the waist. When I say tight, I mean strong enough to firmly have the foam belt attached to the hips in order to keep it from sliding around. The fact that once the Exospine is tight, it freely moves, making it the most efficient belt out there.
Most people do not realize a lot of backpack belts lock your pelvis which is why throughout the day on a march or a hike, you may want to undo your belt because your pelvis has not been moving (which makes each step expend more energy). When someone undoes the belt is when they feel the weight on the shoulders/girdle.

**CEOCFO:** *What is the approval process for a product when working with the military?*

**Dr. Glenn:** Some units do not allow a Soldier to have the freedom to choose as much of their equipment as other units do. The average soldier is a little more supervised and restricted in what they will allow them to bring because their commanders do not have approval from higher up and they are not certain if it will cause a problem for the soldiers even though we have worked to try to make sure that it is not an issue. Some of the Special Operations and Special Forces units can buy anything that they think makes their job easier. These Soldiers can buy whatever they desire. If it makes their job easier, they can use it.

**CEOCFO:** *What is your business model and go to market strategy?*

**Dr. Glenn:** I go to many of the conferences and military bases that will expose me to the right individuals. For instance, Senator Cornyn was the one that sponsored us in the congressional Defense Bill for $1.7 million. Sen. Cornyn’s military legislative aid was a former captain in a Special Forces unit. When I walked in to show it to him, he stated that he knew all about it. Realizing that he could only see the body armor, I said, “No sir you don’t.” I asked him to takeoff his jacket and put the body armor and Exospine on. His response was not surprising to me, “Oh, we have to get you some money.” Somebody who had worn that equipment, tested it, and could tell the difference. That is when we were put in the congressional Defense Bill (which failed to pass). Sequestration of the military then began under the previous administration and funding dried up. It has been a challenge, yet we continue to make slow progress.

**CEOCFO:** *Are you focused on US or global markets?*

**Dr. Glenn:** Right now we are only in the US. We have had messages of interest from units in England, Canada, and Australia. We would be glad to go worldwide with civilian versions and for our allies we want to provide them more rugged and advanced systems but that is still taking time and with limited resources, trying to get to those points has been the issue.

**CEOCFO:** *What is your revenue model and what is the annual potential for your device?*

**Dr. Glenn:** In the United States alone, when we were selected for that $1 million from the Texas ETF (never received, since they “ran out of funds”), they made me go through and present all the possibilities and that included the military as well as civilian markets. We identified a $26 billion market and that did not include all the accessories and attachments that we’ve since developed which would be an additional industry and that includes book bags, backpacks, baby carriers, lifting straps, anything to ease load-bearing. If you carry a load and have weight on your back of any type, this could diminish the wear and tear
as well as increase your longevity or endurance in whatever task you are performing.

**CEOCFO:** Where are your current products being manufactured?

**Dr. Glenn:** For the current model, it is being manufactured down in a small town in Texas. Once we have more funding we would like to move to more of an injection molded system that will make it more modular, more adjustable to anybody’s size. We also have some new ideas and hope to file new patents in the future.

**CEOCFO:** How has the Crowd Funding campaign been going? Have you approached the investment community?

**Dr. Glenn:** We have had some small investors (including some former Special Forces individuals, who believe in our product) along with myself. We have done many presentations and still have not quite found the right partner. We had a manufacturing company that wanted to set something up, but they made a comment that indicated to me they were not hoping to manufacture a military grade device. In fact, they were talking more about wanting to see replacement parts and anything that would break under the greatest stress, as an example... if that broke on a Soldier in battle, that would be a distraction to his fight. I refused to accept that type of manufacturing quality and they would not grant me control over quality assurance. As a result, I said, “I'll pass.” Therefore, we are still looking for that right team, the right funding. The potential is there and our patent is written very well, so I feel confident that we will set a new standard that most people had not even considered.

**CEOCFO:** In closing, why is Integrated Support Exospine such an important device and Emerald Touch a company worth following and investing in?

**Dr. Glenn:** One of the things that we did not touch on that I try to convey to people about the significance of the market is that from 2008 to 2013 the American Physical Therapy Association did a retrospective study on the cost of back pain. What they found out was, we spend $200 billion plus each year for everything from aspirin and Tylenol, to surgery and rehab. Now if the Exospine can just cut down on wear and tear, cut down on injuries, it will decrease the cost to the insurance companies, it will decrease the injuries on the job, increase the working capacity of all workers and their jobs because they will not be as tired. Decreasing injuries is essential, since an injury will usually end up being compounded by a second injury. The idea being, if I only affected 25% of a $200 billion industry, which is $50 billion a year that is not being spent on unnecessary costs then we can prevent the problem. As a company our goal is to understand not only the nature of efficiency in biomechanics, but the cost to employers, government and anybody who has employees or the individual who is working for himself who has to keep himself healthy. With that in mind, it will cut down on orthopedic, physical therapy and chiropractic visits. The goal is to try to prevent the injury rather than treat it.