

A PHYSICAL THERAPIST'S JOURNEY IN PRODUCT INVENTION & DEVELOPMENT!

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A Physical Therapist's Journey in Product Invention & Development

There was always something invigorating about "creating" something from scratch and I think it all began when I was a child building blanket forts in the house and snow caves and tunnels outside. It stayed with me as I pursued a career in fitness and Physical Therapy later in life.

I always had ideas and some seemed farfetched but there was something about designing and being creative that excited me. I think as a culture we can all get excited about new things that emerge that can improve the way we live and work which is probably why the show Shark Tank is so popular.

Physical Therapists by nature are creative and innovative people looking to lead the way even if it is just a simple hand in guiding a life improving treatment plan for a patient.

For me, it was always a burning desire to create something and when I say burning desire, I mean that it excited me on a very deep level. It would motivate me and give me an overwhelming sense of enjoyment and hope to think that it was even possible for me to learn and create and ultimately produce and sell something that came out of my head.



We became the "Dream Team"

I grew up in a small town in Upstate New York and the economy wasn't one of the most robust in America so a few months out of PT School, I took an opportunity in the state of Michigan which specifically involved me "reviving" a poorly performing outpatient medical facility.

The company's entire business model was predicated on the medical care and rehabilitation of injured workers. I believe it was an \$800 million dollar company at the time with locations in almost every state I could think of.

My role was primarily to serve as the lead Physical Therapist, but it quickly turned into a marketing job as I found it necessary to have my hand in that aspect if I were to have any success in turning this clinic into a bustling center. I became good friends with the head marketing lady rather quickly and she wasn't well liked because performance wasn't extraordinary.

She immediately liked me and I liked her and I saw a funny and kind lady who just needed a dynamic "partner" so to speak. We became the "Dream Team". My boss, Mark Glover, was a firm but fair leader who always supported my eagerness to do better.

Talk about economy, we were surrounded by "The Big Three" Chrysler, Ford, and GM and the 200+ manufacturers supporting their operations with the smallest little plastic and rubber fittings all the way up to the actual stamping of car panels. The clinic I was in charge of growing was in Chesterfield Michigan, about 40 miles north of Detroit.

One of their **biggest offerings** to employers was the preemployment, human performance exams which would help determine a job candidate's readiness for a particular job description.

All this company had in the therapy rooms was a 3-tiered aluminum wire rack shelfing structure with very cumbersome methods of adjusting the heights of the shelves. It became clear after administering many HPE's and analyzing hundreds of job descriptions that this company needed something that offered much more specificity in measurement and versatility and an additional and compelling "selling point" to employers.

I remember vividly a significant amount of alone time or "creative time" as my wife was commuting back and forth from upstate New York with our green, 4-cylinder minivan. So between trips it was just me and Hot 'n Now, an inexpensive burger joint right down the street from our home at Chesterfield Farms apartment complex.

I would grab 3–4 hamburgers and head home to draw a product I had been envisioning that would be a perfect solution to my company's need. Almost like the whole "drawing an idea on a napkin" concept I drew several versions on a sketchpad and continued to fine tune it over a 3–4-week period.

I soon discovered that Manifesting was a real thing!

During patient treatments I began to describe my ideas and it would lead to many great conversations, one of which set my journey on a comprehensive path to inventing, developing, producing, promoting, and ultimately selling my first product idea! I was a novice clinician but a curious one and I always felt that if someone had pain, I could figure out why and if I could determine why, I could fix it.

Well, I fixed a gentleman's shoulder and he had listened to and viewed the drawings of my product vision over the previous 7–10 days and finally suggested that I meet a friend of his down in the heart of Detroit. He was a welder.

I remember specifically being extremely excited because I had never met a welder and I felt as though I was now making concrete moves toward a real process.

I walked into what I quickly learned to be a metal fabrication shop and I showed the welder my drawings and asked him if he could make what I dreamed up and he said yes! What happened over the next few weeks sent me on a whirlwind of education and discovery and additional steps in my initiatives to bring a product to market.

The Prototype

One of the first things I learned was that if you have an idea you want to protect it so I learned about the different types of Patents, Patent Attorneys, etc. I quickly discovered that the \$700 I had saved was not enough for the \$6,000 patent that was recommended by a patent attorney.

But I did have the money for a "Provisional Patent" that would at least give me a year to turn that into a real patent so that's what I did. I believe it was \$75 at the time. I thought that it would be better to get it off the ground and make some money even if someone knocked it off later than to let my idea go to waste waiting to save money for that Patent. So, I moved forward.

The first version that I drew was made exclusively out of wood, but I had met a welder and welders don't make things out of wood! So, I remained open minded and pursued the possibilities utilizing steel. I learned so much about steel fabrication, jigs and welds and this became very important later on when finishing and mass production were necessary. Jigs of all the components were necessary in ensuring that all holes lined up and replication was highly efficient.

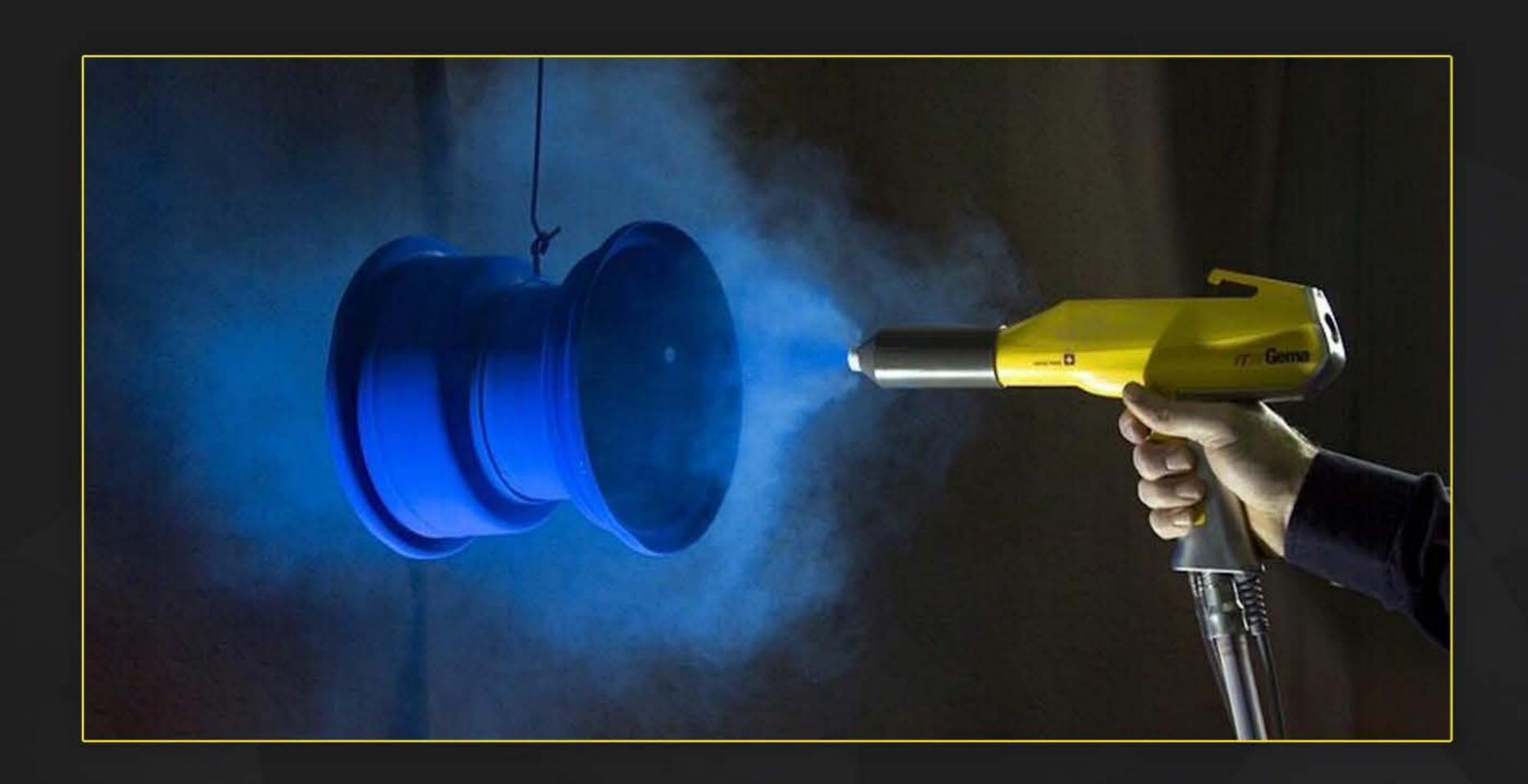
It was one thing to build a piece of equipment using raw materials and another to select and perfect the finishing so it stood up to the wear and tear it would have to endure.



The earliest versions were sprayed and finished with paint in big paint booths. This led to some disappointments and hard lessons as the paint would wear off quickly and left the product quality less than desirable.

This led me down a path of discovery regarding all options for finishes that could be utilized for steel and aluminum which would make the equipment bullet proof so to speak. I went to powder coating facilities and chrome plating facilities and learned a lot about different gauges of steel, types of steel, the importance of good welds vs bad welds, and ultimately the best possible choices for each component of the final product version.

Powder Coating became the standard for the grand majority of the equipment framing and there were many choices of powder coated finishes in terms of color and texture and that was important to me as I wanted my invention to look sleek and modern because much of my competitor products looked antiquated.



Wood became Important after all

Now that I had satisfied the strength, stability, durability, and aesthetic aspects of the primary steel structure, I began to incorporate some other necessary materials and structural and cosmetic components which led me down a wood fabrication path similar to my steel fabrication path.

Similar to the hard lessons on the steel finishing journey, I faced challenges with wood fabrication and finishing for many of the same reasons, aesthetics, durability, and functionality. For the wood fab journey, I didn't have a patient with a connection to a quality wood fabricator so I initially hired a mom and pops kind of a guy who was far from an expert but willing to help me out. He was a nice guy with good intentions, but retrospectively was determined to be just that and nowhere near what I actually needed for a product I wanted to sell globally.

His wood finishing processes were primitive and amateurish but we both learned a lot and some good things came out of that relationship. (Eventually he became my equipment delivery guy all over the country).

I went on to learn that a CNC machine was much more efficient than a table and miter saw and that an expert wood lamination and edge banding process was much more superior to things made one at a time by glue and hand.

It is comical now to look back on it, but I was truly a novice and that was my learning path and it eventually led me to a better process with other material fabrication initiatives for a variety of future product inventions.

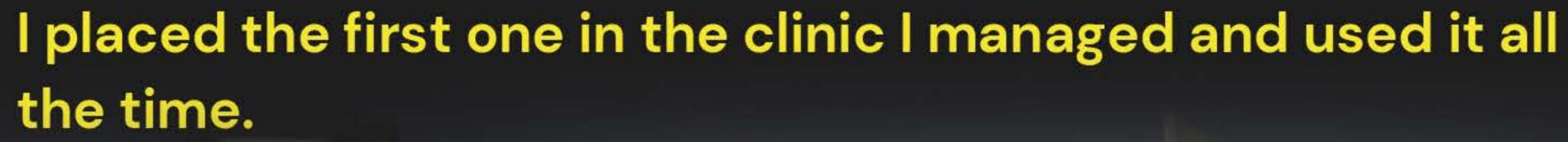
Other components such as logos and numerical stickers were perfected down the road to bring the cosmetic appeal to completion.



The first generation of my dream invention was finally done and I named it "Rehabilistation"!

It was a multi-functional, multi-component workstation designed to test and rehabilitate workers in a manner which was highly specific with a precise method of measurability.

It was a tall, sturdy, steel and wood structure that looked fantastic! It contained a Ladder, a staircase with platform and stainless-steel railings, a "resistance band ladder" to accommodate exercises targeting muscle groups from overhead to floor level, and a unique shelving system that allowed for job specific task execution within a 1-inch adjustability format.





What happened next sent me to the hospital!

The moment of truth was finally here. The company for which I designed this product would now have to like it. So, much blood, sweat, lessons, and tears went into this venture. Although there was no such thing as Shark Tank back at that time, this was my Shark Tank moment.

I started with my immediate boss. He loved it! He couldn't believe that I created such a thoughtful piece of equipment. In fact, he immediately got on the phone with the National Therapy Director of this \$800 million dollar company and said..

"Gary (Gary Zigenfus, god rest his soul) You have to see this"

In subsequent weeks, Gary was in town and he came to see my Rehabilistation and he liked it also. He wanted to go back to corporate and would let me know if we could use this in the company.

Then I got the call. "Joe, we want to put these in our centers across the country" I immediately called my wife and she had to drive me to the hospital, I literally thought I was having a heart attack.

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I was overwhelmed with joy, excitement, disbelief, and an overall feeling of "oh my god, now what?" Thankfully, I did not have a heart attack and it was quite frankly an episode of emotional overload.

I had dreamed up a product that was predicated on the philosophy and need of a National company of which I was one young and green Physical Therapist and employee and THEY WANTED IT IN ALL OF THEIR CENTERS! I DID IT!



Overnight my Product became a Business!

The next several months to a couple years sent me on many other paths of discovery. Product manufacturing, storage, packaging and shipping, delivery and assembly, service, quality control, marketing and promotion, business entity creation, staffing. It was quite a ride.

I remember my wife and I hand polishing stainless steel component parts for hours on orders going out. I have fond memories working with and learning from a corrugated packaging company as this product required a couple of custom-made boxes.

We started packaging and shipping from a small storage unit we rented for \$69/month. We rented Ryder trucks and sent my first wood fab guy from state to state delivering and assembling the Rehabilitations.

We opened our first S-Corporation and named it **Healthy Quipment Inc**, hired my wife's brother Mike, and headed to the APTA's Annual Therapy conference and created a booth in the Exhibitor Hall! From that tradeshow we met many key customers including a principal from a company in Hong Kong of whom we sold several Rehabilistations to in subsequent months.

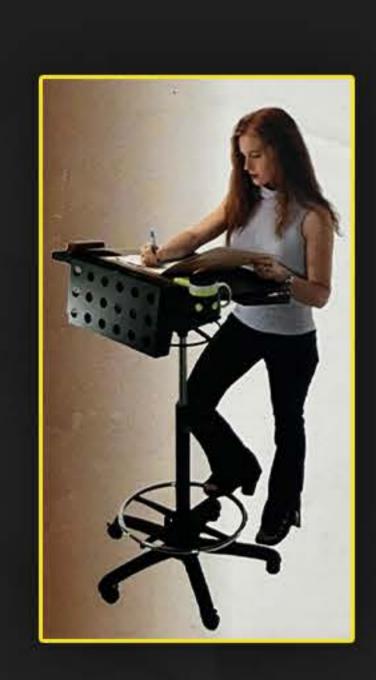
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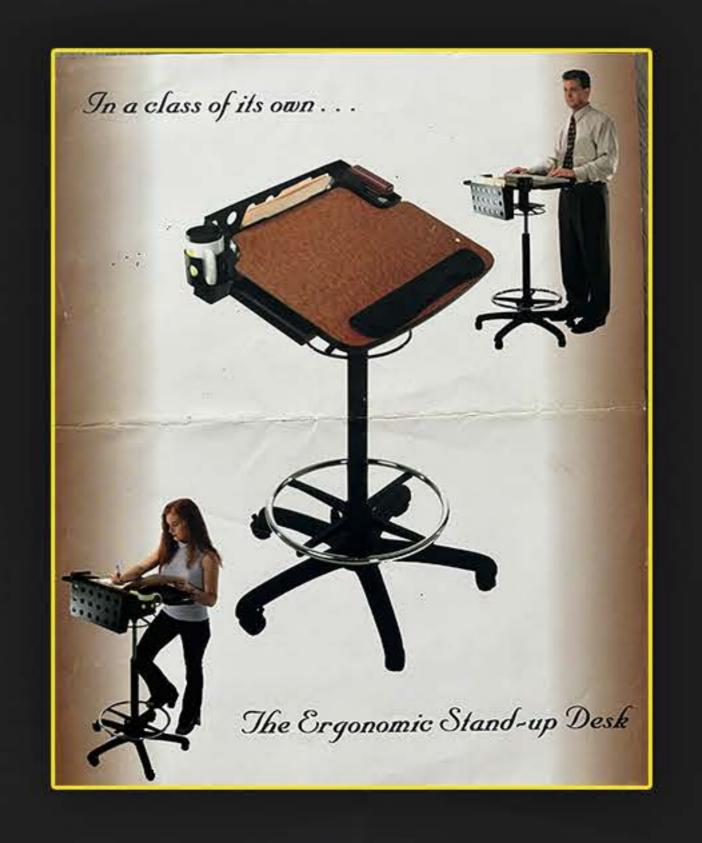
Over a 2–3-year period I sold \$280,000+ worth of product which I felt was quite remarkable for my very first product invention.

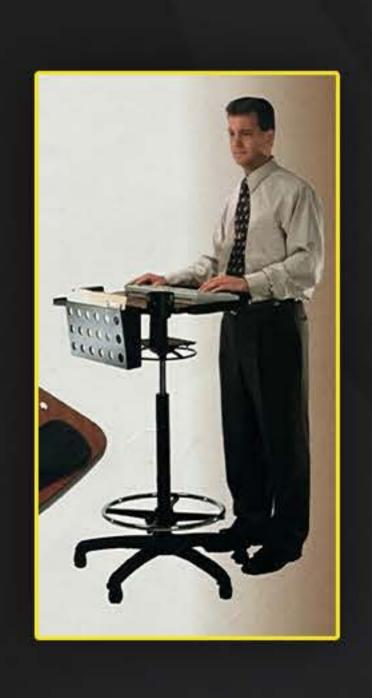


The financial reward was great, but the biggest accomplishment was the actual creation of the product and all of the education and lessons that I will keep forever.

The Rehabilistation was the ice breaker for me as I went on to invent, develop, and market several other products. (Including Stabiliblades, a Stand-up Ergonomic Desk, and several asymmetrical and plate loadable lifting and carrying devices for the purpose of testing and rehabilitating workers.







My general advice to aspiring Physical Therapists who want to create and sell a product.

There's a good chance that what you are dreaming of making can help thousands of people and can add a good source of extra income for you!

So, stop thinking about it and start making concrete steps toward making it happen!

Search the entire market to make sure that your product idea isn't out there already and even if it is similar but your idea is superior in any way it's worth your time to explore. For any similar products or devices, be sure to search the US Patent directory just to be sure you aren't infringing on anyone's patents, trademark, or copyrights. You can search the internet to see how to do this or you can pay a patent attorney to conduct a search for you!

Once you are sure you have something worth pursuing protect your idea first by applying for a provisional patent with the US Patent and Trademark office in Washington. It is an inexpensive way to get started, you can decide as you go if you want to pursue a utility or design patent.

While you are thinking about your product it is important to see the end game.

What is your plan for production and distribution? Is it for business to business (B2B) sales? Are you selling to other PT's and PT companies or are you selling to consumers?

Explore the different types of materials that you could potentially utilize and delineate the positives and negatives of each. Keep production costs and the production process in mind early on.

For example, if you want to make thousands of your product and you want a very low production cost in the end you may wish to learn about plastic molds etc. These molds are often more costly up front but can save you thousands down the road.

The weight and dimensions of materials may also be important when you are considering shipping and handling. This type of inquiry early in your process could be the difference between success and failure.

Once you have determined the best materials for your product it is great practice to learn and discover everything about those particular resources. You must think about environmental responsibility, potential patient allergies (ie. Latex), sourcing the materials and material manufacturers.

You must keep pricing of everything in mind the entire way because in the end profit margin will make or break you.

Find reputable manufacturers that you want to work with and keep in mind shipping time, costs, and minimum quantities. Do you want to support USA manufacturers or look abroad?

How will this effect not only price but also the reliability of your brand? You must also keep in mind the customer experience right from the beginning.

Think about how you will be paying for development. Do you need to spend hundreds of thousands on market research? Nope! Do you have the cash to get your idea off the ground? If not, you could look to friends, family, or other potential backers or you may need to use your credit cards or a line of credit. If you are afraid to put money into it then you don't want it bad enough.

Producing a prototype can be as simple as sourcing materials that will never be used to make the final product but can serve as a conceptual model that can be modified and manipulated during the early stages of development. **Get creative and jump in.** Maybe you are getting yourself a table saw or router or perhaps you are utilizing a small, local mom and pops shop to sew upholstery or padding. Maybe you are going to a Michaels or a Joann fabrics. Perhaps you need to learn to work with nylon strapping and Velcro. Whatever it is just have fun!

I am wishing you the best! Now go make it happen!



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Dr. Joe Martin, PT, DPT, OCS

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