As a former owner of multiple exercise and physical therapy facilities, I continue to want the best equipment for myself personally along with my clients. I wrote this article for the colleagues I’ve worked with on their choices of equipment within their facilities. This article will explain some of the misconceptions people have on MedX™ Medical Machines and the now obsolete computer system being utilized. There are 5 medical machines by MedX™ which I personally hold certification on. These are through the University of Florida and the College of Medicine and Human Performance. The machines are: 1. Lower Back Extension, 2. Neck Extension, 3. Torso Rotation, 4. Neck Rotation 5. Knee Extension/Flexion
Believe it or not, only the Lower Back and Neck extension machines are currently still manufactured and sold by MedX™. I’ll give some explanations as to what has occurred.

The truth is very few changes or advancements have been made since MedX™ came out with their original line of machines. With many manufactures making machines, the basic movements of the human body are well understood and replicated in many ways. MedX™ continues to produce a high quality line of exercise equipment which is nearly identical to how Arthur Jones first produced it in the early 1990’s. Arthur Jones personally spent millions of dollars on the research of his MedX™ machines before he even built his first one for public sale. Once the machines reached the manufacturing stage, they were at the pinnacle for the technology of that era. If we look at a MedX™ Chest Press from 1990, to the current one - they are identical. It’s the same with Leg Extension, Leg Press, Compound Row, Medical Lumbar and many others when you compare their design over the previous twenty years. A few of the cams may be cut differently, but overall they are identical. The technology MedX™ uses has not advanced since the Lumbar was introduced in 1987.

How can something developed over 20 years ago still be considered “State of the Art” as is often claimed? Over 90 percent of the computers on these machines still run on MS DOS. The data that comprises the norms for Isometric Testing has not been updated in over 20 years. The norms for all medical machines except the lower back were never subdivided into age ranges. How can anyone actually compare the strength of an 18 year old to someone on social security and believe it’s a meaningful measurement. All strength tests generated are being compared to an imprecise database.

The MedX™ medical machines use only two simple sensors, a strain gauge and potentiometer (angle sensor for the movement arm). It isn’t like a computer in a car that reads multiple sensors and reacts to them by changing the air/fuel mixture, transmission shift points, and engine timing to maximize performance and fuel economy. Nothing even remotely close to this is occurring, even though it’s often implied - that something within our bodies will be interacting with the computer. The computer doesn’t manipulate anything like it does in a car or even like a thermostat. The two sensors have nothing to do with the exercise. Truthfully, the computer only monitors the machine and
in that way the machine is less computerized than my 1992 Chevrolet Lumina, a modern elliptical, exercise bike or treadmill.

On a modern aerobic exercise machine, the computer has control of either the amount of strain placed on the movement arm, or the speed of the belt being walked or run on. Some machines control the level of intensity by monitoring the user’s heart rate. If the heart rate is too slow, the machine increases the speed or difficulty of the exercise. When the user reaches their targeted heart rate, the machine maintains the set or correct level of difficulty. If the heart rate elevates to high, the machine then backs off, the computer is in a loop with the user. This is actually a pretty amazing piece of control technology.

Another quick example is with a Tetrix stationary exercise bike that I own and purchased in 1996. On this bike the faster you pedal, the more the computer backs off on the resistance applied to the user, and the slower you peddle the more resistance is added. While peddling faster the user performs more revolutions per time unit, so the bike automatically decreases the resistance to keep the work load constant. While peddling slower, the user performs fewer revolutions per unit of time so the computer increases the resistance in order to keep the work load the same. The computer makes sure that the user is performing the same net work load regardless of how fast or slow they peddle. In many ways it responds like a real bike. Can the “state of the art” Medical Lumbar do anything remotely comparable to a ten year old stationary bike!? Not even close. But the point is a ten year old piece of aerobic exercise equipment has computerized features that are far more advanced then the medical lumbar machine or any medical machine in terms of exercising. Because the computer is NOT part of the exercise, the medical machines in fact are not computerized machines, only computer monitored machines. And that is a huge difference. At best they are computer monitored testing machines -- they are not interactive with the user. The medical machines computer set up is stone aged compared to the old Tetrix stationary bike (now covered with dust in my basement). From a computer control standpoint, the 20 year Medical Lumbar was already obsolete ten years ago! And think about how much technology has advanced in the last ten years.

Let’s make another comparison on the technology put into the temperature controls of our exercise room. Our heating and cooling system (HVAC – Heating, Ventilation and Air Conditioning) has 16 sensors with 18 user controlled inputs that are used to control the room by having the computer control something like 15 different outputs/setting (some binary on/off, some variable) on the exercise rooms HVAC system. The system has a set of 5 different programs it runs on controlling these alternating variables depending upon outdoor conditions, occupancy of the exercise room, and the condition of the HVAC system itself. The control computer is custom programmed, and its program can be controlled through a web browser from any where in the world. On top of that the system creates data logs of all inputs and outputs that can be also be viewed on the web. If anything happens to go array with the system, it sends text messages to our cell phones and kicks the system into its fail safe backup mode. These types of interactive, variable, back looping controls are common place in many industries. This type of technology humiliates the medical machines computer from the perspective of interaction with the machine and the client or patient.
How can two simple sensors - a strain gauge and potentiometer, describe something as complicated as the spine? It no longer makes any real sense when you look at it clearly. It takes many more sensors and complex programming to simply control our heating and cooling system. Our system does allow us to truthfully keep temperatures into the 50s (if we choose) during the hot humid summer months with very low humidity. And it extracts healthy levels of fresh outside air with filters prior to entering the exercise room. If you ever looked at a psychometric chart, you will realize that achieving low humidity in a cool room, with any amount of fresh humid outside air is difficult, time consuming, and quite expensive process to go through.

When one looks at a cervical or lumbar MRI, suffered real chronic back/neck pain, or had spinal surgery - they know the spine is far more complex and fragile then our heating and cooling system. On the Medical Machines, how can two input variables to the computer (with no output/control variables going back to the exercise machine) even begin to describe what is occurring with someone’s rehabilitation program? By comparison, it now takes sixteen inputs and fifteen outputs constantly interacting with each other in a tight loop for our HVAC system to simply control exercise room temperatures.

Computer controls have moved a long way since Arthur Jones had the software written for the IBM PS/2s (1987) personal computers in DOS. Who knows what great things Jones would have done with today’s technology. It is unfortunate he retired from MedX™, instead of applying all the advancements in the computer control field over into his exercise machines. Who knows what great ideas he would have come up with? MedX™ offers a USB adapter and software that runs on Windows for two of their Medical Machines, but this software is still limited to two inputs, and is just a rewrite of their old DOS software for Windows.

The research provided by MedX™ is from the early 1990’s in all the brochures. Only recently did they add some of this information to their website, but look at the dates of the studies - (its still over 20 years old).

With the exception of the lower back machine, the restraints on the other machines for the spine are uncomfortable against the chest, neck, arms, shoulders etc… and are claustrophobic for many people. The machines are nearly impossible to move being so heavy and awkward. The knee extension machine is not even usable for performing dynamic exercise for knee flexion. It’s really a waste of time owning one; it’s truthfully an over-rated leg extension.

Tim Ryan with Precision Fitness in Naperville IL is considered by many to be the foremost expert on equipment design and its use in the Midwest. How many medical machines does Tim use for himself and clients after being in this field for 20+ years? The answer is none. He actually sold his one medical machine and replaced it with a commercial grade Nautilus machine he re-trofitted himself; feeling he actually gets better results for himself and clients. He may very well be right.

Since 1999 MedX™ has completely discontinued the manufacturing of their old rotary machines – Rotary Torso and the Rotary Neck. It was just the year before that the Knee
Extension machine was discontinued from production. Less than 10 were sold the previous 5 years combined for all three (rotary torso, rotary neck, knee extension). They were discontinued due to lack of interest and the high cost of manufacturing.

Arthur Jones was an extreme man who always did things to an extreme level which led to his equipment designs. With Arthur no longer apart of MedX™ since the early 1990’s, the new “CORE” line (which includes machines for Lower Back, 4-way Neck, Rotary Torso and Abdominals) is the future direction for MedX™. These machines are the new so called “State of the Art” with a price tag a fraction of the outdated medical machines. However, they are still based upon the same 20 year old technology.

Like the barbell, MedX™ machines are classic “old school” training tools. Until another Arthur Jones comes along investing millions of dollars developing software driven, computer controlled, non-weight stack machines, we are stuck with old technology in the grand scheme of things. The idea of full range exercise has been around for 150 years since Dr. Zander publicized his writings. This stuff is not modern, but it doesn’t have to be to work well. Classic tools, including quality trainers are what work long term in a controlled environment.

In conclusion, there is no need to obtain or utilize any medical machine with the exception of the Medical Lumbar Extension. The Lumbar’s design continues to provide superior isolation, comfort, and flexibility for all those who utilize one of them. However, all testing features of this machine are worthless and dangerous, so do not feel compelled to have a computer with the machine. (See my article on Isometric Testing Dangers on this site).

Compare the CORE Torso Rotation to the medical Torso Rotation, and it’s almost humorous how much better the CORE rotation is designed and utilized. The same comparison can be made with the CORE 4-way neck being superior to the medical Neck Extension. A few less whistles and bells, but the fatigue generated and comfort is significantly better.

It’s quite obvious the CORE machines have been designed to replace all the medical machines in the near future. With 3 out of 5 machines no longer available, it is just a matter of time until all 5 are obsolete. Some people see the computers and the sheer size of the medicals and feel that’s something special. Honestly, it’s a waste of metal taking up a vast amount of floor space which could be better utilized.

If you’re thinking you need a computer with medical machines for any type of physical therapy program you’d like to develop, you should contact me directly. I am not willing to write a 20 page article explaining the details of that discussion.

This article could have the same application towards many other components of the medical machines, but is a good starting point to understand that the technology is well behind the times of other fields and/or industries. Next time you use your cell phone, just realize that its technology is far superior to any medical machine by MedX™.
I can be contacted for further questions on the points discussed.