**Research Campaign: Magnetic Gravity Simulator, Protecting Human Health**

**Authors**

Bhekuzulu Khumalo

Banzi Solutions, Richmond Hill, Ontario, Canada

1 647 501 6138

bhekuzulu.khumalo@banzisolutions.com

**Abstract**

A major aspect of human health on the moon is due to a lack of gravity causing loss of muscle mass and bone density loss. The magnetic gravity simulator will alleviate some of these problems in an inexpensive manner.

**1. Introduction**

“1Space travel-induced physiological changes in skeletal muscle result in the loss of muscle mass and strength; the mechanism(s) that cause this loss are unknown.” This is the beginning of a paper that was about experimenting and looking for the mechanisms that cause muscular atrophy in space travel.

Very novel experiment for its time and worth the read for one who wants to have some scientific grasp of muscular atrophy. The results of the loss of muscle mass due to being in space yields the same results as being badly injured and one does not use certain muscles.

Most of those interested in space are aware of this problem. Quoting 2NASA, “A nutritious and adequate diet and exercise are essential, so astronauts working aboard the space station are “prescribed” more than two hours of exercise per day to combat muscle and bone atrophy ...  The search for treatments for bone atrophy in space overlaps with research on bone loss associated with osteoporosis on Earth. While in space, immobilization and illnesses occur at a much higher rate than normal ageing...”

Back in 1999, it was suggested in the conclusions that “1Thus, a combination of injected GH and brief intermittent exercise was found to be effective together, but not separately ... The feasibility of long-term delivery of therapeutic proteins such as GH from reversibly implanted genetically engineered cells has been shown to be possible.”

In 2020, the understanding of treatment has increased greatly. 3Space.com made the world aware of a recent experiment, again with mice, that had in its conclusions “These findings suggest targeting myostatin and activin A "could be an effective therapeutic strategy to mitigate muscle and bone loss that occur in astronauts during extended spaceflight, as well as in people on Earth who suffer from disuse atrophy as a result of being bedridden, wheelchair-bound or elderly," Germain-Lee, a pediatric endocrinologist at the University of Connecticut School of Medicine in Farmington, told Space.com.”

Many solutions for health in space have much use on Earth as well. The magnetic gravity simulator will also have such benefits for the health and safety of humans both in space and on Earth. One reading further should easily understand the concept.

**2. Current Thoughts on Muscle and Bone Therapy in Space**

Current thoughts on what is to be done about muscular and bone atrophy are mostly covered in the introduction. In space, people need to have regular exercise as well as a future that involves an injection of some sort. This injection will alleviate at the cellular level bone and muscular atrophy.

**3. Magnetism**

Magnetism was shown in 2021 to organize into a 4wave meaning that magnetism is a quantum phenomenon, those are discrete things organizing into a wave. Though this fact greatly advances our understanding of what is magnetism, magnetism itself does not change behaviour.

The opposite phenomenon of magnetism attracts each other. But because we now understand that magnetism is about particles and waves like any other quantum phenomenon, we understand the process clearer. It is not an attraction that is taking place but magnetics particles, khumalons, are annihilating each other causing a magnetic vacuum and that attraction is about closing a magnetic vacuum caused by the oppositely charged particles annihilating each other.

This property of closing a magnetic vacuum (attraction in layman’s language) can be utilized to provide a greater grip for astronauts in space. This is possible because of advances in technology and materials of things that can be magnetized. The material can be very light and sturdy.

Any simulation of gravity must utilize this closing of the vacuum property, this attraction principle and be useful enough to keep weight down, though weight itself does not matter once one is in space. Gravity simulation is needed so that humans can use more of their muscles in space.

**4. Magnetic Gravity Simulator**

Humans have adapted to Earth, adopting gravity on earth. Gravity has meant that humans have a muscular/ skeletal system that functions best in an environment that has equal gravity to earth. In space, some of these conditions can be replicated cheaply by introducing magnetism.

All magnetic gravity simulators involve a magnetic rubber floor. A cubic meter of 5aluminum weighs 2 699 kilograms. A cubic meter of 6rubber weighs 920 kilograms, almost 3 times less. Thus, just on weight alone, it is feasible to have a magnetic rubber floor.

A basic magnetic gravity simulator will also involve magnetic rubber on the soles of footwear whilst inside a space station. The footwear will have at the bottom opposite polarization to the top of the floor thus able to take advantage of the closing of the magnetic vacuum, the so-called attraction effect. The rubber soles are made in such a way as not to over hinder the process of walking, one does not for example want too strong of a magnetic effect as people will not be able to walk or do their jobs on the space station.

The calibration of the magnetic floor and magnetic rubber soles must be carefully done to ensure that one is walking at the same pace they would on Earth without floating, thus using their leg muscles. This will take some time but can be developed.

The more advanced gravity simulator also involves a magnetic rubber floor, however, the sole on the boots the magnetism is electronically controlled, thus the strength of the magnet on the sole is monitored by the wearer of the footwear.

This footwear sole will be made from rubber mixed with ferrite, as ferrite is lighter than iron. There will be wiring going inside the sole and this wiring can have a current run through it when the wearer deems so, and they can vary the strength of the magnetism coming out of the sole.

**5. Contribution to Safety on Planet Earth**

Though thought of for space, the concept has very much great potential on earth for the health and safety of those who make a living from being surrounded by iron. Metals can be very slippery. On Earth, however, the concept only requires footwear. Its purpose will be different from that in space. In space humans need to grip, on earth, they need greater traction.

Take ironworkers who work on beams. Having a magnetic rubber sole that is properly calibrated means they will have greater traction on those beams. This will give the workers greater confidence.

Take crane operators and those who fix cranes. With tower cranes, they must at times walk across the tower and a work boot with magnetic rubber soles would help give more traction.

Take those who work on large ships like ferries, tankers, container ships, other cargo ships, navy vessels and such, magnetic rubber soles would increase safety as well as stability especially when the waves are high, and the oceans and seas are considered rough.

For those who climb towers for a living, water towers, petroleum towers, wind turbines, mobile phone towers, greater traction will be offered as they climb up the iron ladders that can be higher than 300 feet.

**6. Recommendations**

This should be priority research, it practically ensures the safety and health of astronauts, the muscles will work more. It also will have tremendous benefits on Earth. On Earth, all that is required is footwear. Work should commence as soon as possible when those in charge feel that a budget is a factor. It uses basic concepts of the magnet, known a few millennia ago. One need not know the quantum properties of magnetism.

This will also mean greater research into magnetism and its properties; some scientists would enjoy that.

**Conclusion**

Simple but effective technology. This will be of great benefit to many, not just astronauts but with the construction boom in North America and the world in general with ever taller structures being built, the concept will ensure greater safety.

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