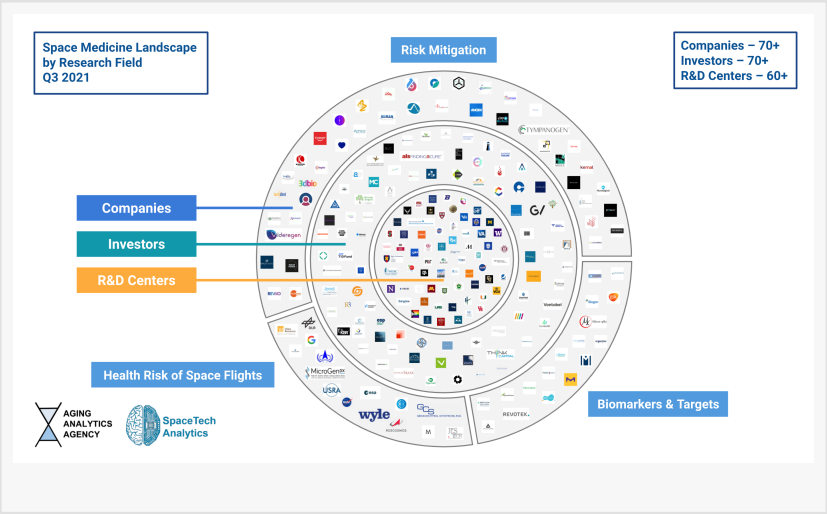
Space Medicine and Human Longevity in Space Q3 2021

SpaceTech Analytics provides insights into the 70+ Companies that work for Space Medicine to preserve the long-term health of space travelers.



LONDON, UNITED KINGDOM, September 9, 2021 /EINPresswire.com/ -- SpaceTech Analytics – in cooperation with Aging Analytics Agency and FemTech Analytics, subsidiaries of Deep Knowledge Group – releases a joint, open-access, 65-page report – Space Medicine and Human Longevity in Space Q3 2021 – summarising key observations in the SpaceTech ecosystem, a rapidly evolving and exponentially growing industry. Here, we have assembled information about key industry trends and created a comprehensive database of more than 70+ Space Medicine-related private companies, 70+ leading investors, and 60+ R&D Centres and Associations. This report contains information about major directions in Space Medicine: astronauts' health risks as well as women's health in space; age-related biomarkers; some approaches of risk mitigation; and the main trends in this area that help to improve astronauts' health and make their rehabilitation more effective.

> Space Medicine and Human Longevity in Space Q3 2021 summarises key observations on the new trends on the market and research area that engage in the Longevity Industry"
>
> *SpaceTech Analytics*

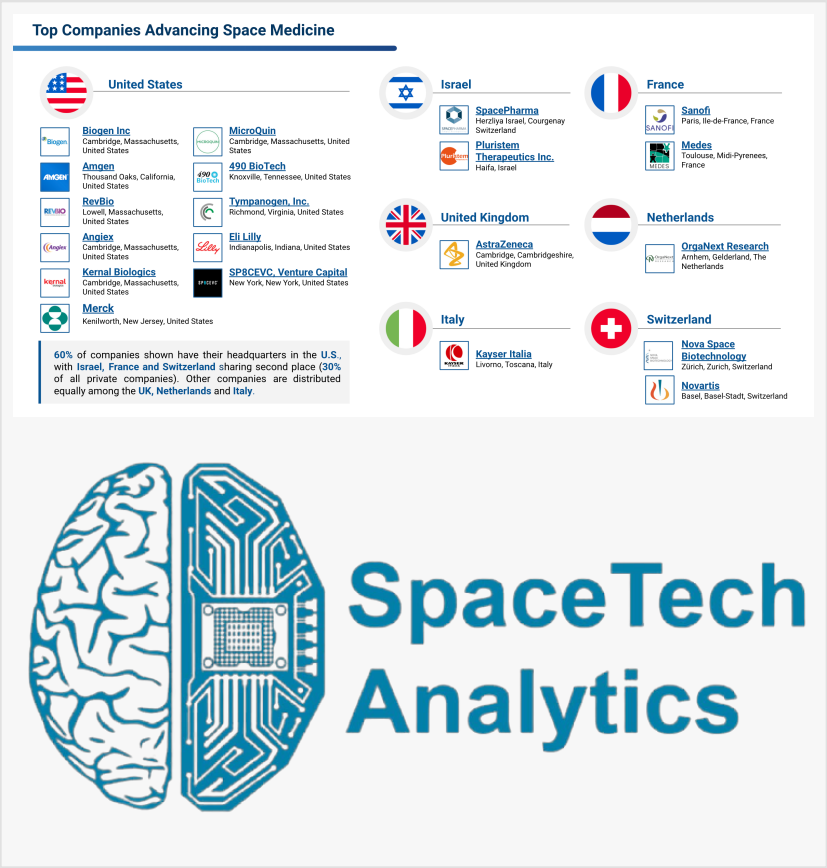
Link to the Space Medicine and Human Longevity in Space Report:

www.spacetech.global/space-medicine-2021

Link to the Interactive MindMap:
mindmaps.dka.global/space-medicine-2021

Currently, 25% of the Space Medicine market is dedicated to bioengineering solutions for astronauts who experience adverse age-related degenerative conditions; these include eye and

bone implants and medical hardware to analyse and support astronauts' health. Another 25% of the marketplace is focused on the area of the biotechnology industry dealing with space-related disorders and in situ amino acid production. More than 35% of space-related companies provide research equipment for the International Space Station (ISS), while 5% are directly dedicated to Human Longevity in space.



This overview offers an analysis of:
- Space Medicine-related private BioTech, pharmaceutical and healthcare companies; R&D Hubs and Associations; and the cooperation between them.
- Human Longevity in space and the treatment of some systemic disorders, highlighting their practitioner application for astronauts' recovery after spaceflight.
- Changes in the age-related targets and biomarkers in astronauts after short-term and long-term space flights.
- Scientific and technological convergences between aging and the harmful effects of spaceflight, as well as the ways in which the specific therapeutic approaches that are used to protect and preserve the health of astronauts intersect with Practical Healthy Human Longevity. Modern unconventional approaches are gaining development and are already available, in use, and ready for further research.
- Trends and perspectives of the Space Medicine market with comprehensive analysis of the main directions and unconventional approaches to improve human health in space and achieve recovery after spaceflight.

Major business takeaways from the report include the following:
- One of the key strategies to address spaceflight-related conditions both in space and on Earth involves biomanufacturing research. The main areas of biomanufacturing include: Regenerative Medicine, Organ Printing (3D bioprinting), and Drug Discovery.
- 55% of US space research is devoted to commercial entities; the USA is also a world-leading country in private space research.
- Although there are a lot of forthcoming commercial projects on the International Space Station, prices are going up significantly and are now 10 times higher than in April 2021.
- This creates additional pressure on the emerging private sector and leads to the idea of creating alternatives to the ISS space stations which are going to be private.

- The leading positions in this department are occupied currently by Axiom Space, Thales Alenia Space and Sierra Nevada Corporation. There is no doubt that, due to ongoing research and development in medicine, long-term human space flights will become routine in just under 30 years.

Some of the key points from the analysis include the following:
- Weightlessness leads to muscle loss, bone loss, renal dysfunction, cardiovascular system, immune system disorders, as well different neurological disorders and deteriorations in behavioral health.
- The areas of difference between men's and women's physiological adaptation to the spaceflight environment include cardiovascular (20% vs 100%), sensory-motor
(38% vs 50%), ocular disorders (47% vs 0%), and intracranial pressure (82% vs 62%).
- The health risks for astronauts during both long-term and short-term space flights have been investigated for years. The cardiovascular mortality rate among Apollo lunar astronauts (43%) is four to five times higher than in non-flight and LEO astronauts
- Long space flights lead to ~25% activation of mitochondrial respiration and ~30% growth of membrane lipid peroxidation in comparison with peroxidation levels before the flight. By contrast, the antioxidant level in astronauts is 4-10% lower than before the flight. Oxidative membrane damage was evaluated through the assessment of levels of lipid peroxidation in elderly people compared to the young.
- Analysis of different studies has identified significant changes in gene expression responsible for tissue remodeling for all types of cells. Most of these genes are pro-oncogenes: p53, c-Syn, Zip, WT33, Unph, etc.
IL-6, CRP, IL-10, CCL2/MCP1, and IL-1Ra are elevated during spaceflight. These include tumor TNF-α, IL-1α, and IL-1β, which are normally associated with immune dysregulation but are also involved in bone metabolism and early stages of muscle regeneration.

About Aging Analytics Agency
Aging Analytics Agency is the world's premier provider of industry analytics on the topics of Longevity, Precision Preventive Medicine, the Economics of Ageing, and the convergence of technologies such as AI, Blockchain, and Digital Health and their impact on the healthcare industry.

About SpaceTech Analytics
SpaceTech Analytics is a strategic analytics agency focused on markets in the Space Exploration, Spaceflight, Space Medicine, and Satellite Tech industries. Its range of activities includes research and analysis on major areas of high potential in the SpaceTech industry, maintaining profiling of companies and government agencies based on their innovation potential and business activity, and providing consulting and analytical services to advance the SpaceTech sector.

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