



# The Transformational Power of 5G in Sports & Health.





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# INTRODUCTION

With the advent of purpose-built smart cities, such as Lake Nona, the innovation rush has begun. As the implementation of 5G spreads across the globe, successfully harnessing the technology will have a prolific impact that could spur a golden age of innovation that has never been seen before. leAD, in partnership with Tavistock Development Company, have poised themselves to capitalize on this new technology and accelerate innovation in the sports and health ecosystem through the leAD Lake Nona Sports & Health Tech Academy.



*Imagined as a smart city designed to accelerate innovation and well-being, Lake Nona is a catalyst for economic growth and opportunity. The leAD Lake Nona Sports & Health Tech program enables a group of carefully selected startups to take advantage of Lake Nona's Verizon 5G broadband capacity, enabling testing of innovative technologies and solutions, and helping talented individuals bring their businesses to the market.*



The fifth-generation technology standard for cellular networks is experiencing increasing hype because it will drive an exciting new wave of innovations made possible by ensuring better data streaming and connectivity. The improvements provided by 5G will lead to **reduced latency, faster upload/download speeds** due to higher bandwidths, and it will enable single-use devices to conduct digitally automated services due to **increased connectivity** (1). Of all the industries that will benefit the most from telecommunications improvements, sports & fitness may be the most exciting.

## BENEFITS OF 5G



Reduced latency



Faster upload/download speeds



Increased connectivity

This paper explores the benefits 5G infrastructure will have on sports and then focus on the new wave of innovation it will spur in connected fitness and personal health.

(1) Forbes

## 5G IN SPORTS

Currently, the benefits of 5G infrastructure in the sporting ecosystem have been applied primarily in fan engagement, in-stadium connectivity, and streaming/broadcasting platforms. For example, the 2021 Tokyo Olympics is set to showcase 5G by rolling out different apps and functionalities, bringing the viewer even closer to the action, creating fun virtual activities, and implementing an augmented reality experience using holograms (2).



“ Imagine enjoying a courtside experience of your favorite team through virtual reality (VR) all while sitting in the comfort of your own home. You will even have the option to choose which angles to view the action, from overhead coverage to the personal perspective of the athlete”

What makes 5G thrilling for sports is its potential to bring the fans even closer to the action whether in the stadium or at home. **Imagine enjoying a courtside experience of your favorite team through virtual reality (VR) all while sitting in the comfort of your own home. You will even have the option to choose which angles to view the action, from overhead coverage to the personal perspective of the athlete** (3).

Inside the stadium, 5G improves the fan experience even further through new opportunities that lead to an improvement in fan retention. Revenue should increase drastically because a better network and connection means there are more options for fans to interact with the venue on the various devices they bring to games. The more activities they engage in while sitting in the stands, the more likely fans will remain in their seats, spending money. These engaged fans can use their phones to improve their viewing experience by viewing in augmented reality (AR), making micro bets in-game, ordering food from the concession stands, interacting with their favorite athletes, or seeing real-time statistics of the match. 5G will improve fan experience and stadium activities, but how will it benefit athletes?

Professional athletes will also stand to gain due to the exciting opportunities at the intersection of these four key areas: tracking, analytics, communities, and content. These four areas will be

(2) Forbes

(3) Analytics Week

interconnected in a manner that will allow athletes more control of their health, performance, and fan engagement through the new 5G-capable innovations that synthesize data more efficiently, creating a more connected athlete. **Tracking and analytics are improved by advanced camera technologies and wearables that accumulate real-time data and produce valuable insights for the user.** Also, their engagement with the fanbase is improved, allowing athletes to share data instantaneously with their community. This will contribute to the athlete becoming a “data brand”, leveraging the data collected to make themselves more accessible and marketable.

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## COMPANIES AHEAD OF THE CURVE

**Phlex and Break the Love – both part of the recently announced leAD Lake Nona Sports & Health Tech cohort** – are two examples of the future generation of connected athletes solutions that sit in the intersection of tracking, analytics, communities, and content.



### Phlex

**Phlex, founded by a team of five elite swimmers, uses technology and design to fuel athletic passion and performance.** An emerging player in the connected fitness industry, Phlex brings hardware & software specific solutions to the fourth largest recreational activity in the world: swimming. Their initial product, EDGE, is an all in one swimming tracker that provides meaningful, engaging training analysis with the industry first head mounted, temporal artery heart rate tracker. The Phlex experience was designed to help swimmers ranging from hyper-competitive to goal-driven recreational and cross-training athletes to maximize their time spent in the pool and train like the best in the world. The Phlex Swim App lets athletes have access to their training logbook and heart rate analytics, as well as training plans and a community of like-minded swimmers. Phlex could heavily benefit from 5G technology by bringing a level of connectivity to swimmers that closes the information latency gap so swimmers can react to valuable training analysis in real time. With access to 5G, Phlex will be able to tap into a greater number of connected devices to capture training data from and improve the speed and transmission for processing data.



## Break The Love

**Break the Love, founded by Trisha Goyal and Tess Szymanski, is the first vertically integrated social network for the recreational tennis player market.** Break the Love digitalizes the capabilities of the tennis club by creating an affordable, engaging, and seamless way to play recreational tennis. With Break the Love, players can access a community through recreational tennis activities through the palm of their hands. The platform helps enthusiasts become athletes through Break the Love's proprietary player data personalizing the experience for each player to perform and compete. 5G will have a massive impact on information distribution and speed, and it is no different for Break the Love. 5G will enable Break the Love players to enjoy more accurate updates on court times, faster replies, and more meaningful connections.

## THE WAYS 5G WILL CHANGE PERSONAL HEALTH & WELL-BEING

**The personal training market in the U.S.** has a market size (measured by revenue) of \$10.4 billion with an average annual growth rate of 2.4% (4). The health coaching industry, which was valued at \$6.14 billion in late-2019, is expected to grow to \$7.85 billion by 2022 and the physical therapy market, from \$34.5 billion to \$45.7 billion (5).

PERSONAL TRAINING

**\$10.4B**

U.S. MARKET - Measured by revenue

**2.4%**

ANNUAL GROWTH - Ibisworld

HEALTH COACHING INDUSTRY

**\$6.14B**

late-2019

**\$7.85B**

2022

**\$45.7B**

PHYSICAL THERAPY MARKET

**\$34.5B**

late-2019

Statistics show that there are ample growth opportunities due to increased interest in personal training and coaching, those of which were previously explained by people's growing concerns for health & well-being. Particularly in the U.S., obesity had been rising at an alarming rate, creating concern over the negative impact on personal health. This growing concern had been assuaged by fitness studios offering clients the chance to get healthier at their gyms, which propelled the past growth of the fitness industry. However, future growth may be further stimulated by a wave of new technology and digital trends (6).

(4) Ibisworld

(5) Club Industry

(6) Wellness Creatives

## PERSONAL HEALTH & FITNESS

In the ACSM's Health & Fitness Survey, the number one expected trend for 2019 was wearable technology, primarily due to Millennials' fascination with digital tech and a newfound desire to be healthy. Compared to previous generations, Millennials are found to be more likely to exercise, but they also prefer a more personalized training program that caters to their individual needs and goals (7). Wearable companies such as Fitbit have successfully leveraged this demand, but 2020 and beyond will see companies create new technologies and apps that will use the emerging 5G technology to cater to the constantly evolving need of the health-conscious consumer. Personalized training and coaching will be a major beneficiary of this new wave of innovation, which will incorporate connected fitness devices that enable users to experience an added layer of gamification and social accountability. What makes this new model appealing are the endless possibilities for innovative ideas once 5G is more ubiquitous.

**With wearables and/or other devices, clients can monitor their vitals and physiological responses in real-time, which can be instantly streamed to their trainers and coaches. Therefore, someone training in their home could receive instant feedback from a personal trainer that could be located anywhere else in the world.** The Internet-of-Things (IoT) could allow the various devices and sensors to communicate with each other to provide a complete and holistic view of a person's health & well-being. These hardware innovations will only improve as 5G expands. Hardware devices such as smart clothing and embeddable wearables will be the future of performance metrics, analysis, and personal fitness.

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(7) Wellness Creatives



## FUTURE PIONEERS OF HEALTH & WELL-BEING

**Companies in this space have seen exponential growth over the last months.**

Yet the connected fitness, health and well-being trend is still only in its initial development. With the exit market maturing, early-stage investors are looking for the next generation of solutions. TERSA, KinoTek, AgeRate and NESTRE are four companies poised to become pioneers in this industry.



**TERS A**

**TERS A, founded by Ray Kelly, is a mobility and alignment system designed to bridge the gap between rehabilitation and fitness.** TERS A wants to empower people by allowing them to take control of their fitness journey and, along the way, predict and prevent potential injuries. 5G will benefit TERS A immensely as it will alleviate the need for clients to make regular visits to their physical therapists. Instead, TERS A's live feedback, 3D cameras, and motion capture can provide real-time metrics that will allow clients, located anywhere they can set up the TERS A hardware, to connect to any health care professional. This also means that 5G will enable TERS A to integrate a multi-sided platform into its business model. With access to this platform, whenever a client needs treatment, they are connected to a pre-approved list of physical therapists that can monitor the user's rehabilitation and provide feedback in real-time.



**KinoTek**

**KinoTek, founded by Justin Hafner and David Holomakoff, stands at the forefront of movement analysis.** They utilize kinesiology, biomedical engineering, and AR/VR combined with motion capture and machine learning software to create a 3D movement analysis tool that only takes seconds to provide objective analysis. With just a camera, their software renders an individualized 3D model that aids in diagnosing issues regarding range of motion and records visual asymmetries in the person's movements. KinoTek is unique because it provides a personalized injury risk assessment and uses a 3D rendered model allowing clinicians to remotely observe a client's exercise form and range of motion. After gathering this information artificial intelligence/machine learning can help to provide individualized health and movement recommendations to their users. KinoTek's software currently uploads a large amount of data to a server, however, this has proved time-consuming. 5G will enable real time feedback and increase speed of assessment due to improved bandwidth and connectivity.



**AgeRate**

**AgeRate, founded by Cole Kirschner, is a biotechnology company that uses epigenetic testing to provide beneficial health insights.** With just a simple cheek swab, they can examine a client's DNA pattern to determine their biological age, which is then compared to their chronological age. With this comparison, AgeRate can determine the rate at which someone is aging and provide healthy lifestyle recommendations that may slow down the rate, such as diet and exercise. For those concerned with security risks, AgeRate de-identifies all samples and stores them separately with high-security protocols in place. 5G will help AgeRate enhance the quality of TeleHealth experiences and facilitate the streaming of real-time data from wearables. They envision a future where their product can provide up-to-date diagnostics and, with the combination of data provided from AgeRate analysis, present real-time lifestyle and environment recommendations or health warnings based on client fluctuations to achieve a longer and healthier life.



## NESTRE

**NESTRE, founded by Dr. Tommy Shavers, is a neuro technology company hoping to change the narratives surrounding brain health, mental wellness, and human performance.** NESTRE has the vision to push the boundaries of human potential, and take human wellness, performance, and potential into a new era to adequately meet the human demands of the future. With their simple training plan called “Better”, created in collaboration with specialists in diverse fields, athletes can continue performing at their best, mentally and cognitively. “Better” offers mental and cognitive training to strengthen brain function and improves cognitive performance, and a mental framing to help provide a customized mental training experience, providing access to talent when it matters most. 5G will help NESTRE assess and improve athletes’ brain injuries faster than previously expected. In a connected environment, NESTRE will be able to improve the speed and automation of the baseline assessment, as well as capture additional data from multiple sources in real-time, providing user feedback for a more adaptive and responsive training experience.

## CONCLUSION

**In the early stages,** these new 5G-enabled innovations will be used by sports and health organizations that have the finances to test and benefit from the technology. The star athletes of these organizations will be the first users, showing the power of 5G and the endless possibilities it provides. However, in the future, these technologies will reach an economy of scale and will be available to the average consumer. Once these technologies become ubiquitous, this industry will witness the next boom in personal health & well-being as it will change how the average person approaches their fitness.

Are you planning to join the revolution or watch from the sidelines? Get involved with leAD and our portfolio companies. Start the conversation by writing us an email or reaching out to one of our team members.

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