



DOGTOWN MEDIA

Why Wearables Are the **Future** **of Healthcare** **Innovation**

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The Wonderful World of Wearables

These days, wearable tech has moved beyond the Fitbit fad that birthed a new category of smart device. By the end of 2018, the International Data Corporation estimated that a staggering **124.9 million** wearable devices would be shipped.

While the 8.2 percent year-over-year growth from 2017 to 2018 seems impressive, forecasts show the wearables market returning to double-digit growth from 2019 to 2022 — and some experts predict the market will **surpass \$14 billion by 2024**.

It's no surprise that wearables have been so well received. About **77 percent of Americans** own smartphones, and wearables are designed to pair perfectly with these devices. In addition to providing the most basic of activity-tracking metrics — a step count — early wearables allowed users to see notifications on their wrists instead of solely on their smartphones. Fitbit created an excellent product for tracking wellness and fitness, but companies have realized that wearables can do so much more.

Manufacturers are taking a deeper dive into wearable devices, and companies like Apple, Biotronik, and Garmin are betting that these technologies will shape the future of healthcare. Instead of limiting the market to hardcore athletes and fitness gurus who want data to inform their health goals, these companies are expanding the sector to include people whose health might be questionable.

For example, the Apple Watch now includes a built-in EKG sensor that can monitor for early signs of a heart attack. That data is sent to an iPhone's integrated health kit, which can then be forwarded to a physician who's tracking a patient's cardiovascular health. For the right users, it's easy to see how this technology can save lives.

As wearables become more comfortable and less obtrusive, they are an increasingly viable option for monitoring the health of elderly or sick people. The devices can be incorporated into a lifestyle with minimal effort, and they carry a potentially massive return on investment. In the coming years, the purpose of wearables will become less about tracking how healthy you are and more about spotting when you are not.



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The State of the Wearables Market

Smartphones collect an abundance of data that marketers and advertisers can use to entice users to make purchases.

What if we could use that same data for more beneficial purposes? The wealth of information that wearables collect allows users to form a better picture of their overall health without a trip to the doctor.

Consider the [MiniMed 670G](#), a smart blood glucose monitor. It automatically checks a diabetic user's blood sugar every five minutes, and it can administer an insulin injection or drip depending on what's needed. Devices like the MiniMed don't just store data — they turn it into real-time action.

Apps synced with wearables can uncover patterns and detect medical conditions, allowing users to exert more control over their health and better inform physicians when visits are necessary. Maybe a patient is taking too much of a medication, which is causing his blood pressure to dip too low. In the past, the patient would've had to notice and report symptoms like fatigue to his physician; the healthcare provider would've then decided whether those symptoms warranted medical intervention. A wearable device, on the other hand, can automatically flag problematic patterns and alert physicians.

Promising developments aside, wearables have some serious obstacles to overcome. The healthcare industry is highly regulated, and manufacturers spend a lot of time and resources getting clearance from the FDA. Regulators look for every chance to deny a new medical device, and with good reason. Imagine the liability that could result if a wearable collected inaccurate data or gave an incorrect diagnosis that led to patient harm.

Making such sophisticated devices at an affordable price point is also difficult. This situation demands rapid innovations in technology and manufacturing. According to one report, just creating a mobile health app [takes about \\$425,000](#). Still, wearables are forging a path and making an impact. Once they're able to overcome the early pain points, the sky is indeed the limit.

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Looking Ahead to a Promising Future

Wearables have come a long way from the bulky devices that were available at the turn of the millennium. In fact, a company called **Motiv** has squeezed wearable technology into a ring that can track a user's basic health metrics for three days on a single charge.

Not only are wearables requiring less charge time, but they're also becoming smaller, less obtrusive, and more powerful with every passing day. In all likelihood, this trend means that the wearables of the future won't be "worn" at all.

Biotronik's heart monitor — the BioMonitor 2 — is an implantable device that records a patient's heartbeat and automatically detects and stores information on irregular rhythms or other abnormalities. Implanting a device under the skin might seem like a far cry from strapping on a watch, but these implantables have some significant advantages. The BioMonitor 2 is more accurate than a wrist-based monitor, and the battery can reportedly last up to four years with daily transmissions. Patients never forget to put it on, and they likely forget it's even there after a few days.

Hearing aids are another exciting development in wearables. Dubbed "hearables," these devices are **becoming smaller and smarter**, going far beyond their original function of improved hearing to connect with Nest thermostats, smart lighting, and even coffee makers. For the 48 million Americans who have hearing loss, the devices promise to revolutionize the industry and change lives.

Wearables and the algorithms that power them are becoming better at collecting accurate information, and AI-enabled technologies can comb through vast quantities of data to identify areas in which patients and doctors should take action. Because many of the devices connect to the internet, everything happens seamlessly behind the scenes.

Thanks to these powerful capabilities, Accenture research shows that 33 percent of consumers use wearables and 90 percent express **a willingness to share health data** collected by a wearable device with their doctor. As this technology becomes more widespread, we're on the cusp of an even more exciting wearable future.



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Wearables and Sound Sleep

Wearable devices are only going to improve with time, but the devices that are already available are making a tremendous impact.

When the National Sleep Foundation wanted to conduct a double-blind study to measure the efficacy of sleep medication, it turned to our team at Dogtown Media to assemble an app. We built a platform with a scalable system designed to measure the quantity and quality of sleep using Fitbit's off-the-shelf technology.

Because the data collected by the Fitbits in the study qualified as protected health information, we built our platform with HIPAA regulations in mind to protect the data during storage and transmission. Our algorithm would track the amount of time participants spent asleep and the quality of that sleep. We could then compare the results of individuals taking a prescription sleep medication with those taking a placebo.

Previous studies required participants to sleep in a laboratory setting with cameras tracking their every movement — an

invasive and unsettling proposition liable to prevent most people from getting a sound night's sleep. Clinicians also needed to review the recordings carefully to determine when individuals were sleeping and when they were awake. Our solution meant participants could sleep in their own beds with the devices automatically tracking their sleep patterns for later analysis.

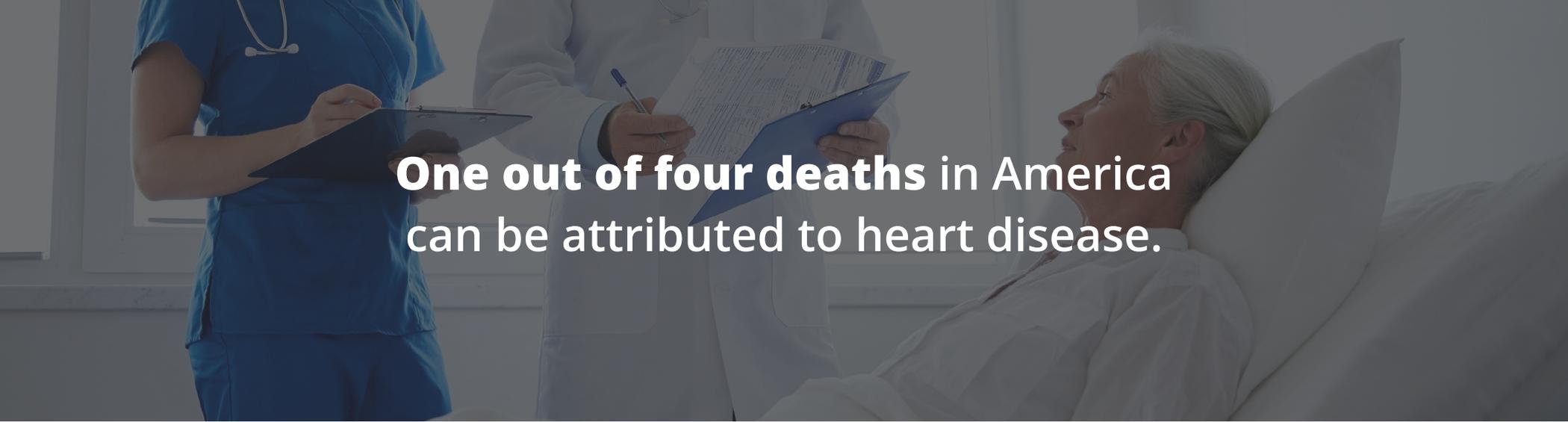
Our test found that, along with eating healthful foods at the right time of night, individuals who took medication for insomnia slept better. This research is particularly important considering the numerous studies **linking insufficient sleep with health concerns** like hypertension and obesity. Combine those findings with a CDC survey that found that more than one-third of Americans are **regularly sleep-deprived**, and it's easy to see how such a medication — and the technology capable of testing it — could have far-reaching benefits.



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More than **one-third** of Americans are **regularly sleep-deprived.**





**One out of four deaths in America
can be attributed to heart disease.**

Moving Beyond Life Alert

Remember Life Alert, the “Help! I’ve fallen, and I can’t get up!” company? Seniors wear the single-button devices around their necks to request help in the case of an emergency. While it has undoubtedly saved lives, Life Alert isn’t on the cutting edge of technology.

What happens when users pass out, have seizures and lose control of their limbs, or simply are unable to reach their devices? Wearables with remote monitoring are the answer.

One out of four deaths in America can be [attributed to heart disease](#). When individuals receive treatment like open-heart surgery, they are particularly susceptible to a repeat incident upon release from the hospital. To mitigate these risks, Dogtown Media created an ecosystem that continually monitors individuals suffering from chronic illnesses.

Using a wearable device, our solution monitors a patient’s health in real time. In addition to tracking vitals like body temperature and heart rate, we included a fall warning algorithm that could tell the difference between a patient flopping down on the bed and a patient falling out of bed and hurting him- or herself.

Monitoring is great, but all the data in the world is worthless without action. To produce results, we built in an emergency monitoring network. If patients suffer heart attacks in their sleep or fall, our system automatically contacts a caregiver, a doctor, or a family member to notify them of the health emergency. If no one responds to that alert, the system contacts the nearest medical facility to dispatch an ambulance to the GPS location provided by the device.

In addition to providing care in the case of emergencies, our system tracks patients’ health over time and informs physicians when their health is trending up or down. This information allows medical professionals to provide the highest quality of care possible. Remote monitoring doesn’t just save lives; it allows people to live the way they want — independent and outside of assisted living facilities for as long as possible. At the same time, these systems give relatives and users peace of mind knowing that they will be alerted at the first sign of an emergency.



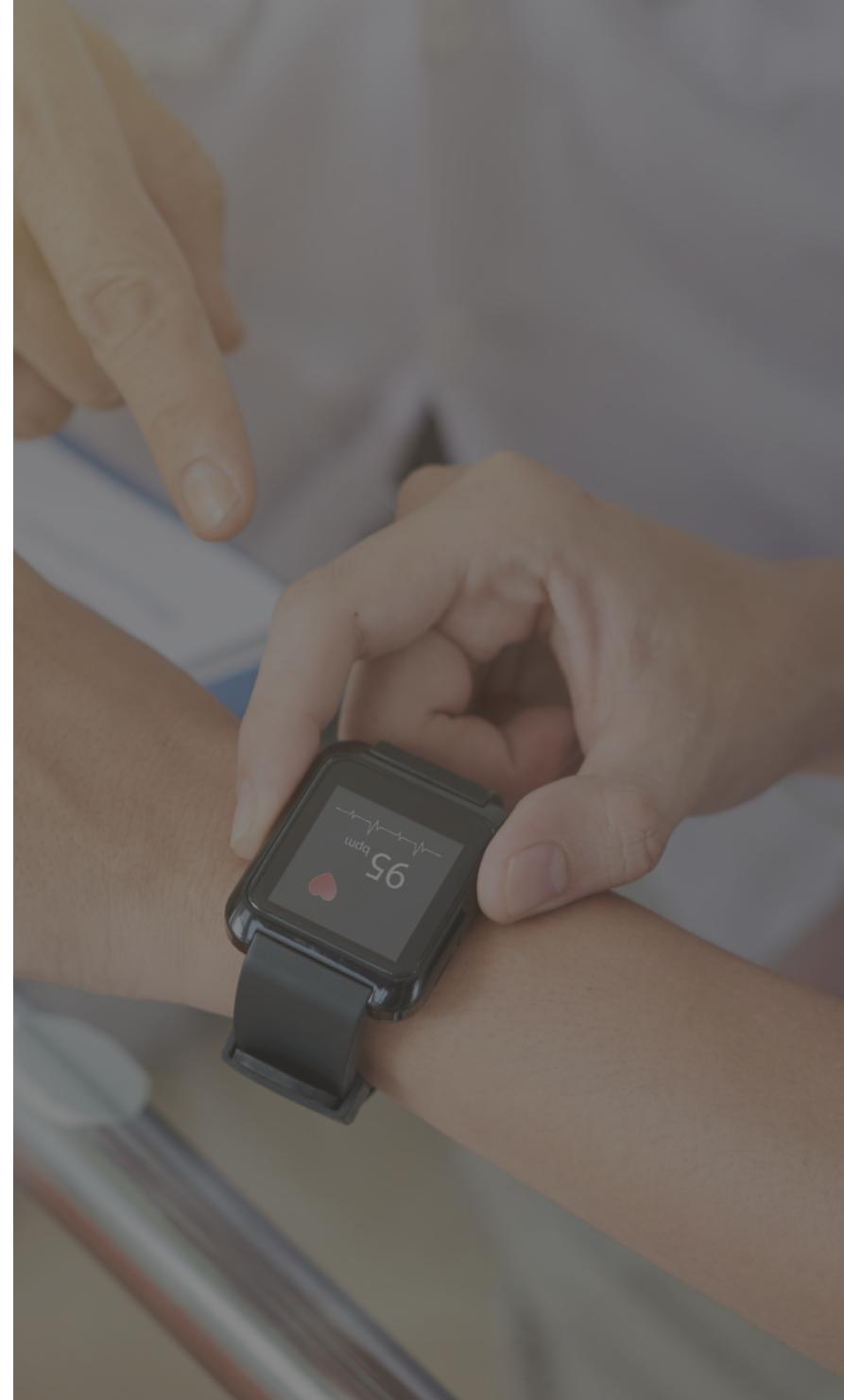
Connecting Wearables to the Web

We created our proprietary tech stack for healthcare providers looking for an emergency services command center. With this technology, one healthcare professional can remotely monitor the diagnostics of all patients, watching health trend up or down from a distance. The tech stack generates frequent reports and grades patient health as red, yellow, or green, allowing physicians to assess patient vitals rapidly.

As long as a patient is wearing a device, the technology can track core vitals like heart rate, breathing rate, physical activity, and calories burned. Paired with a smart scale, it can even record weight over time to help patients lose body fat and improve their fitness. It can also track location, which is incredibly valuable for patients who have dementia or Alzheimer's disease.

Other features include monitoring blood glucose levels and tracking when patients have taken their medication. All of this data is used to send actionable alerts to caregivers, family members, physicians, or emergency services if anomalies are spotted or emergencies arise.

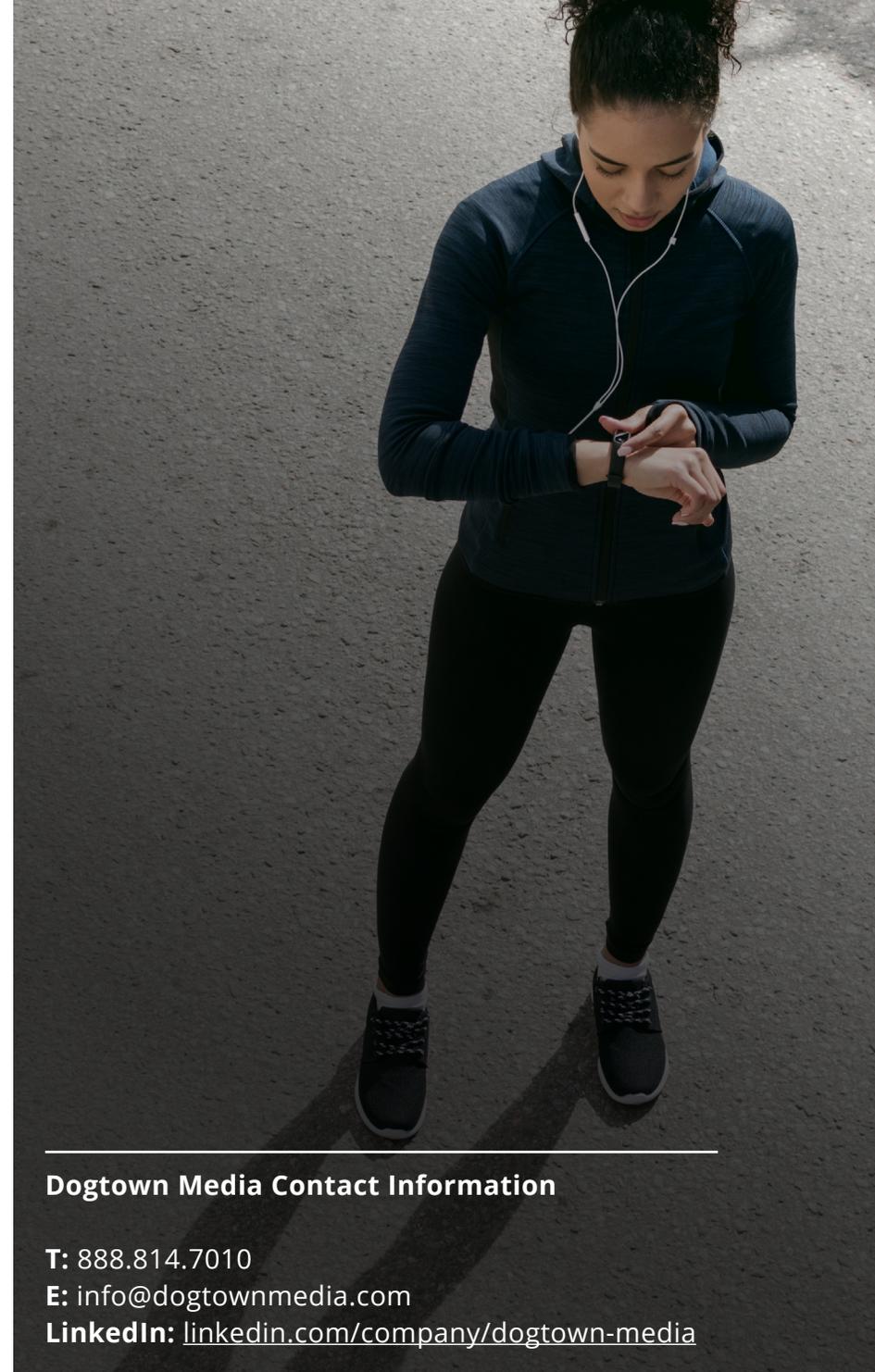
Dogtown Media built its proprietary tech stack from the ground up, and we're currently beta-testing the technology with medical care and assisted living facilities.



You're in Good Hands With Dogtown

Dogtown Media is more than a group of developers. We're a passionate team of experienced mHealth app professionals, and we have the knowledge and talent to turn a rough idea for a healthcare app into a sleek, results-oriented reality. Our apps provide a robust set of features in a commercially viable package, and our development process is designed to get to the heart of each app's differentiators to produce something truly unique and valuable.

App development can be an intimidatingly complex endeavor. Thankfully, you don't have to do it on your own. To learn more about our capabilities and services, **contact the Dogtown Media team today.**



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