

Employers need next-gen **Digital Therapeutic** tools to help employees reduce weight-related disease risk and boost immunity against COVID-19

AI-powered programs that harness individuals' Gut Biome, genetics and lifestyle risks are transforming corporate wellness, the COVID-19 workplace, and at-home safety.

by Ranjan Sinha



Facing a new enemy

COVID-19 has moved fast and kills quickly. However, a larger pandemic lurks behind the scenes. OBESITY and weight related inflammatory chronic illness sap the immune system, create tremendous financial burden for employers and payers, and diminish individual quality of life and productivity. We call this pandemic CoVesity.

In study after study^[1], obesity and weight related illness have been found to be a leading risk factor for mortality and morbidity from COVID-19 across the globe.

According to the [World Economic Forum](#)^[2]

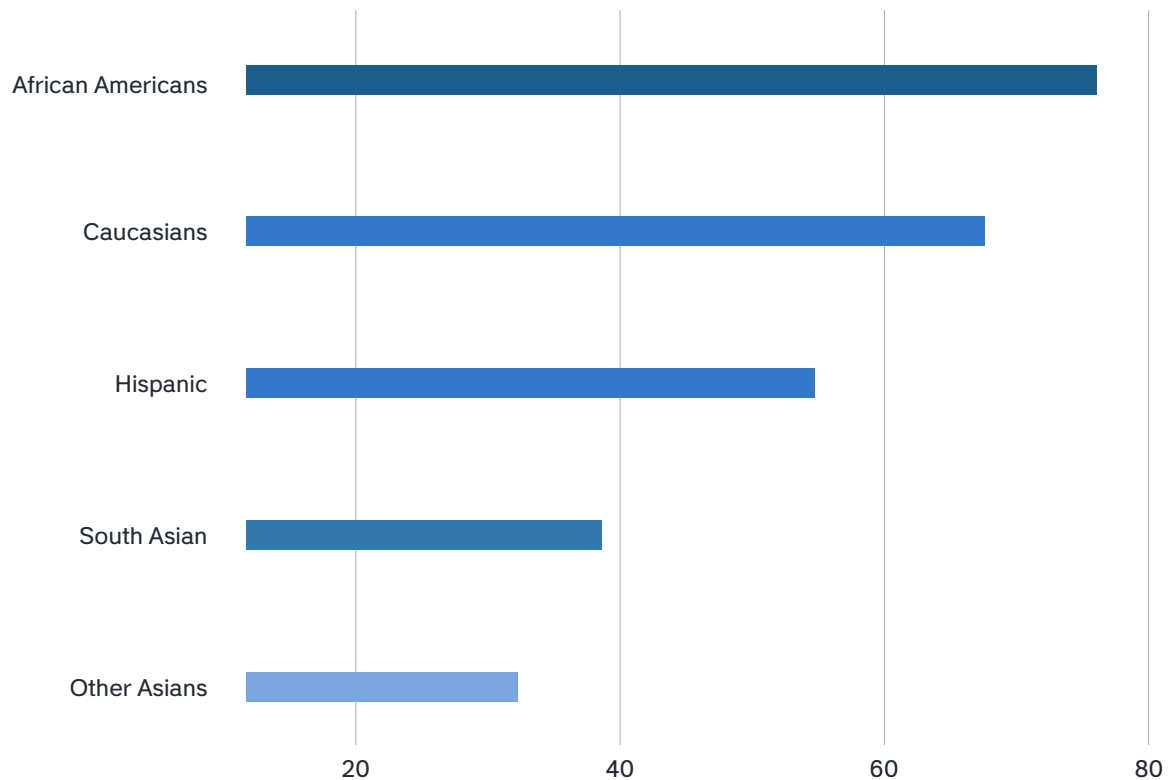
obesity is a greater risk factor for hospitalization among COVID-19 patients than heart failure, smoking status, diabetes, or chronic kidney disease.

Obesity and weight-related disease risks (IBS, acid reflux, hypertension, kidney stones, elevated cholesterol, non-alcoholic fatty liver, chronic pain, sleep apnea and insulin-related disorders like PCOS) vary significantly by gender and ethnicity^[3]. Lifestyle, gut microbiome composition and genetic predilections collectively determine the best path for an individual to successfully manage metabolic illness^[8].

Exhibit 1

Registered COVID-19 Hospital Deaths by Ethnic Group

per 100,000 of the population



Source: Institute for Fiscal Studies and World Economic Forum

Obesity

The Most Expensive Employee Health Epidemic^[6]

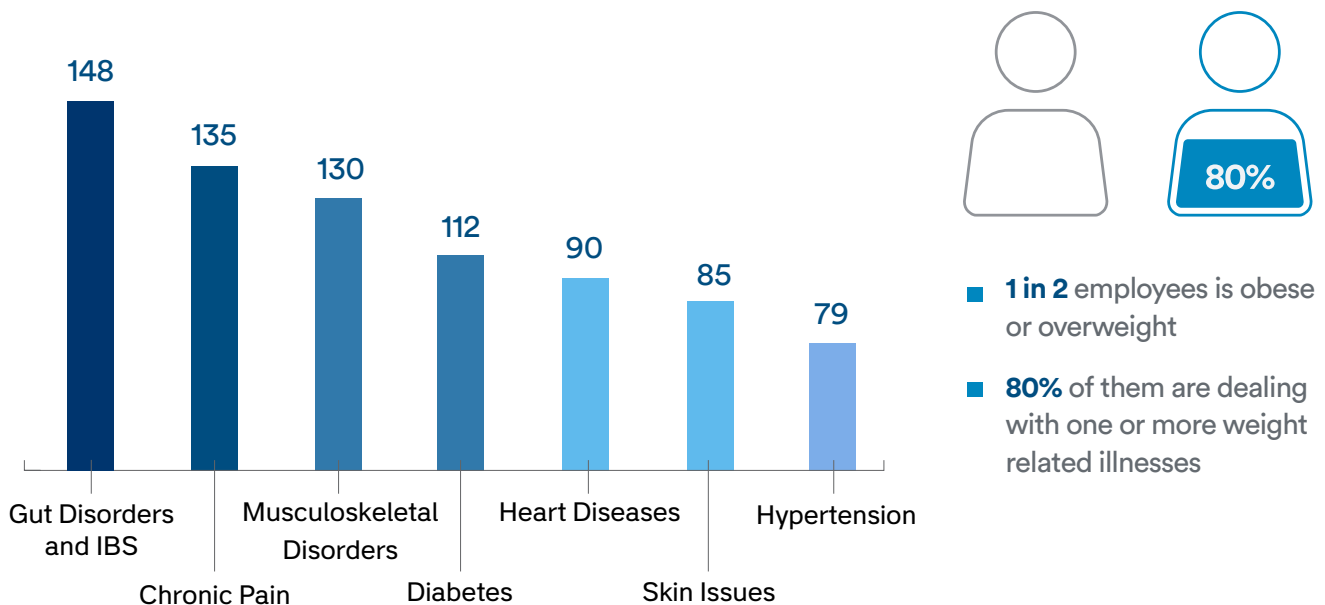
Obesity and weight related illnesses are a major epidemic, larger than smoking and diabetes combined^[4]. One out of every two employees is either overweight or obese^[5]. 80% of them are dealing with at least one or more of these comorbidities.

Doctors and scientists recognize obesity and weight related illnesses as complex medical conditions that demand more than just “one size fits all” programs that focus on “eat less and exercise more”^[7].

Exhibit 2

Cost of Weight related illnesses in working adults

In the United States, Billions UD



Source: Gastroenterology 2018, CDC-Heart Disease Facts, American Diabetes Association, American Psychology Association, American Academy of Sleep Medicine, Journal of the American Academy of Dermatology, US Bureau of Census

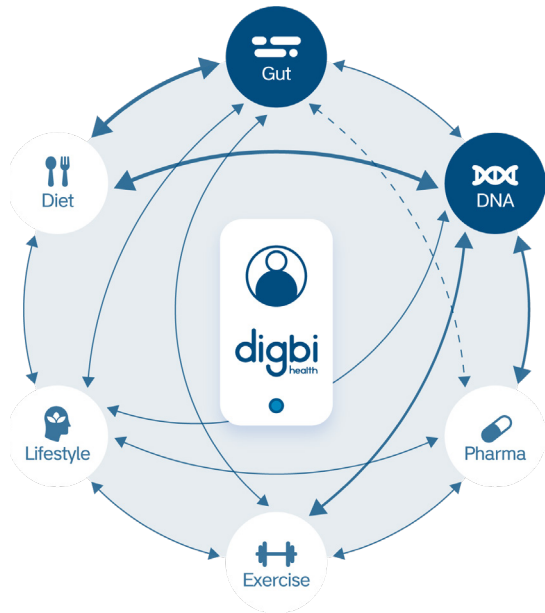
A “one-size-fits-all” eating plan is not evident for the prevention or management of diabetes, and it is an unrealistic expectation given the broad spectrum of people affected by diabetes and prediabetes, their cultural backgrounds, personal preferences, co-occurring conditions (often referred to as comorbidities), and socioeconomic settings in which they live.

Source: American Diabetes Association, Nutrition Therapy for Adults With Diabetes or Prediabetes: A Consensus Report William S. Yancy Jr., will.yancy@duke.edu, Diabetes Care 2019 May; 42(5): 731-754

Next Gen vs. First Gen Digital Therapeutics

First generation digital therapeutics companies offer generic programs that incorporate only lifestyle variables in designing their corporate wellness programs.

The first generation shotgun digital care approach is unable to connect the dots and is an incomplete safety net for obesity-related illnesses^[7] exposing organizations and their ethnically and gender diverse teams to significant COVID-19 related risks.



Next Gen Digital Therapeutics

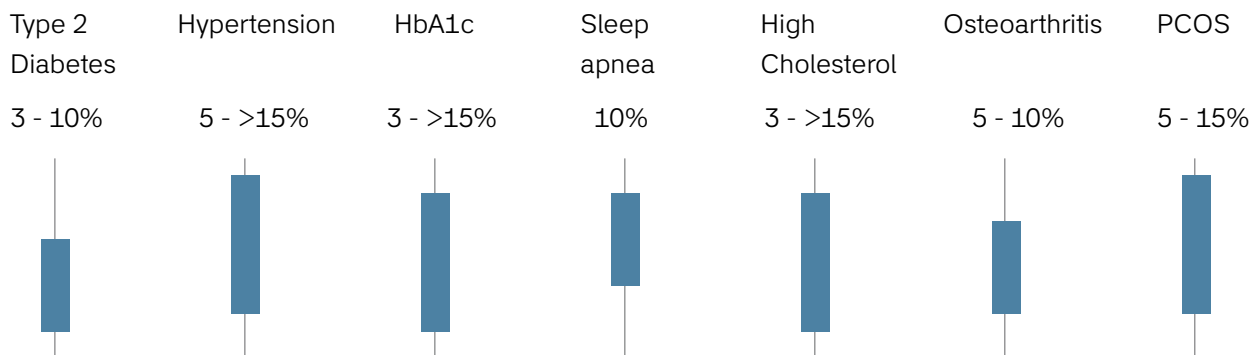


First Gen Care Programs

Exhibit 3

The most proven way is Personalized Weight reduction

Percentage Weight Loss resulting in therapeutic benefit for chronic comorbidities



Source: DPP (Lancet, 2009), SEQUEL (Garvey et al, 2013), Look Ahead (Wing, 2011), Look Ahead (Wing, 2011), Sleep Ahead (Foster, 2009), Winslow et al, 2012, Look Ahead (Wing, 2011), Christensen et al, 2007, Felson et al, 1992, Singh et al 2013, Tutujian et al, 2011, Panidis et al, 2008, Norman et al, 2002, Burgio et al, 2007, Leslee et al, 2009

Precision Care is Better Care

Connecting all the Dots

Several factors and genetic predilections affect what might be an individual's most likely path toward successful management of metabolic illness^[8].

Even so, evidence ^[8] suggests that the best way to reverse and manage chronic inflammatory conditions and associated

comorbidities is to reverse the condition of obesity itself; in essence, lose weight sustainably and consistently.

As opposed to designing an intervention that works for some portion of the population, we need a solution that works for everyone.

Exhibit 4

Digbi Health delivers 2X superior results over first gen solutions

Weight Loss percentage across various digital health programs on the market

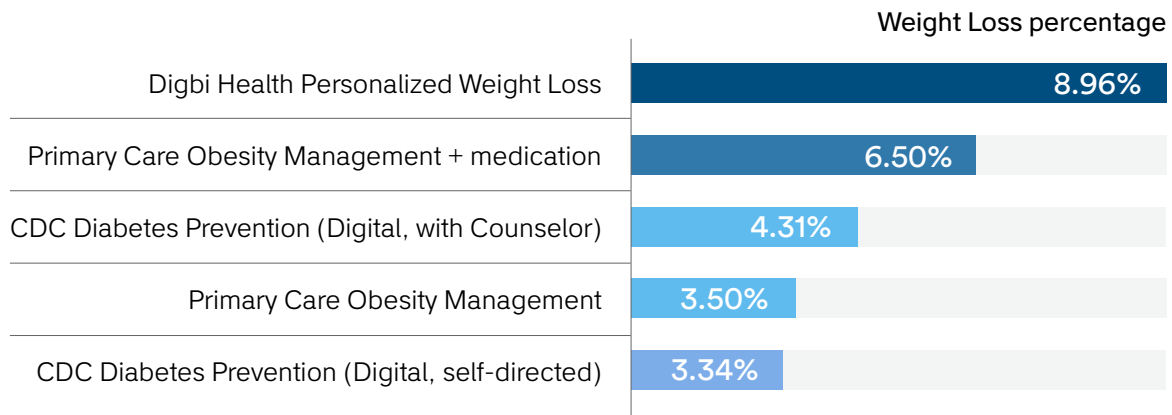
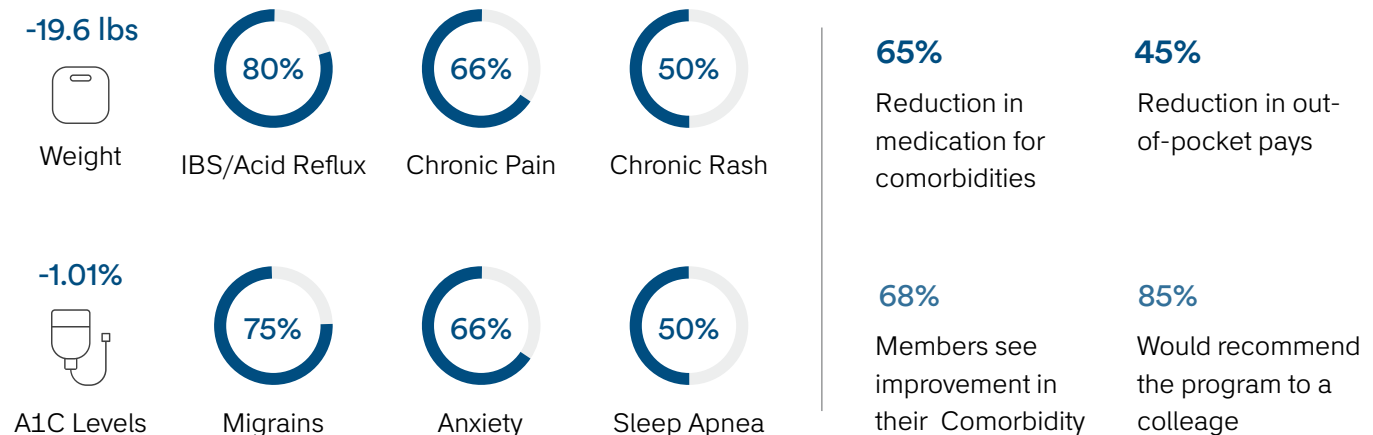


Exhibit 5

Health Outcomes, Savings and Engagement delivered

Remission and reduction of comorbidities expressed as a percentage of the initial severity of the condition



Source for Exhibit 4 and 5: Digbi Health Blue Shield Cohort, 2020

Your Genes and Gut Microbiome

The Immunity Organ

The long-held belief that self-control alone determines a person's BMI is a woefully inadequate perspective [13]. Our Gut Biome and DNA together tell us more about health and risks than any standard approach ever has, or can. Studies have shown[9] a clear link between an individual's Gut Biome composition and their ability to fight illness. Our genetic instruction code controls how our body converts what we eat, breathe, and drink into energy, or to create bones, tissues, muscles and our immune cells.

Humans share nearly identical DNA - about 99.9% [10]. That 0.1% difference gives us everything from different eye color to varying predisposition to chronic health conditions. However, our DNA is not the only determinant of who we are.

In the average human gut reside the 30 trillion cells of commensal organisms that comprise the Gut Biome [14]. Gut bacteria are mini chemical factories unto themselves.

Each producing hormones, metabolites that can alter the course of our health.

Just like we have organ systems to perform various functions, medical science today recognizes that our Gut Biome acts like an organ system. This system, based on its composition, can reduce inflammation, reduce infection risk, and generate critical nutrients [11].

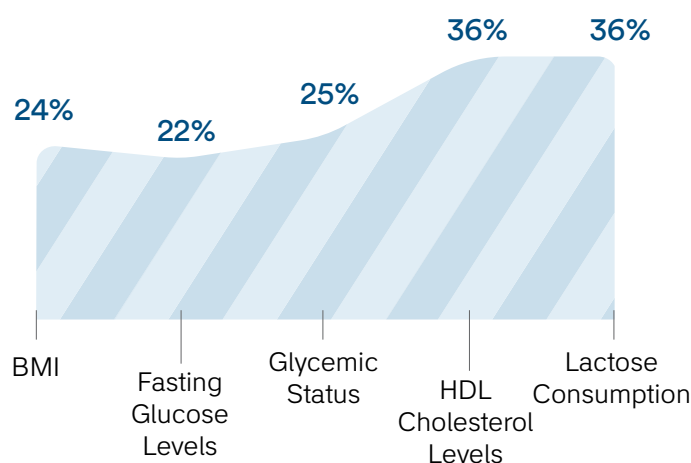
That nearly 80% of our immune cells can be found in our gut [12] has an evolutionary basis. Considering that the most everyday source of foreign matter in the body is the food we eat, immune cells constantly patrol our gut to ensure that pathogens and foreign bodies are dealt with immediately. In other words, our gut is where much of our primary immune function resides.

Several factors and genetic predilections affect what might be an individuals' most likely path toward successful management of metabolic illness.

Exhibit 6

Gut Microbiome association with Chronic Illness markers

And the Summary of diet-microbiota interactions in health and disease



Healthy Microbiota	Gut Dybiosis	Chronic Issues
High diversity; butyrate-producing	Low short-chain fatty acid fermentation	Intestinal inflammation
Anti-inflammatory omega-3	Diet high in omega-6 fatty acids	Pro-inflammatory
Glucose and lipid homeostasis	Insulin resistance	Cardiovascular disease
Gut-brain interactions	Mental health issues or visceral pain	Leaky gut, psychological stress; emulsifiers

Source: Gut Microbiome: Profound Implications for Diet and Disease, Nutrients 2019, 11(7), 1613

Re-entering the Workspace

As employers contemplate re-opening workplaces in the world of COVID-19, they will need a fuller picture of who has already been exposed to SARSCoV-2 and how many people have had this exposure overall.

For individual or herd immunity to play a meaningful role in reopening, accurate antibody tests must be widely available and post-exposure immunity well-characterized, to understand:

1. How close they are to achieving herd immunity, and
2. Whether they can use immunity as a meaningful signal to start reopening ^[15].

Before we can discuss the immune response to COVID-19, we need to understand how the virus operates within a human host. The virus enters the respiratory system, uses ACE-2

receptors ^[16] to latch on to, and begins to create copies of itself, triggering an immune system response.

Low serum AHSR levels (influenced by our genes) possibly causes the uncontrolled production of proinflammatory cytokines ^[17] leading to a cytokine storm which, in the case of a COVID-19 infection, can lead to multiorgan failure and even death. ^[18]

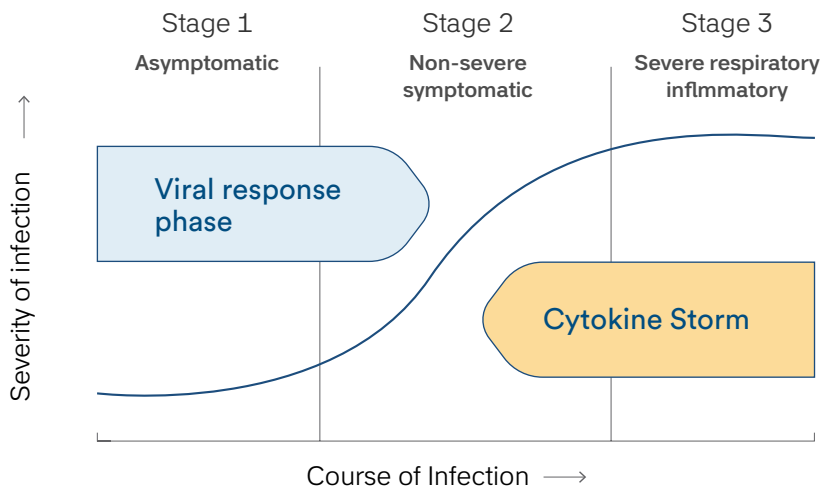
When employees begin returning to work, employers have a twofold challenge to address.

- a. Is their exposure to the virus itself in the form of everyday activities that now need protocols.
- b. On the other, however, is the individual's health condition which further determines how well they're able to manage and recover from this infection.

Exhibit 7

Course of COVID-19 Infection marked by Cytokine Storm

Hypercytokinemic inflammation syndrome in patients with advancing COVID-19



Source: Gut Microbiome: Profound Implications for Diet and Disease, Nutrients 2019, 11(7), 1613

Digbi Health steps in here to help understand and manage health on an individual level. Weight-related illnesses and immunity are both complex mechanisms.

Plugging gaps in employee healthcare

Digbi Cares™ is the next-generation, prescription-grade digital therapeutic tool that uses artificial intelligence (AI) to analyze genetics, gut bacteria, food, sleep, exercise, stress, medication, and craving patterns to create a precision care nutrition and lifestyle program that is delivered in small recommended changes (DiGestible Bites).

Participants are equipped with an app, digital health tracker, genetic and gut microbiome

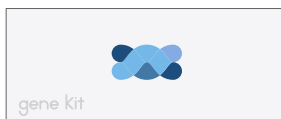
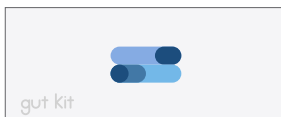
insights, unlimited coaching sessions that include meal planning, personalized behavior change health coach, smart mobile app to help you reduce weight, reverse weight-related inflammatory gut, cardiovascular, insulin-related illnesses, and eliminate medication.

It works, **85% of participants lose weight^[17]** and have lost an average of 19.6 lbs and experienced reductions of weight-related comorbidities^[17] after 4 months in the program.

Exhibit 8

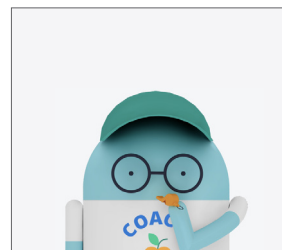
Proven Cognitive Behavioral Therapy combined with Precision Care

Supported by Artificial Intelligence, Connected Devices, and Gut Microbiome + DNA Analysis of the workforce



Testing Kits

- Gut Biome + DNA Kits
- Sent to trusted labs



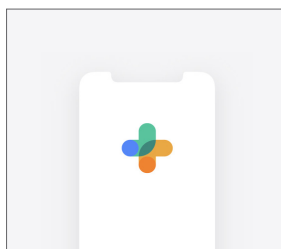
Unlimited Coaching

- Meal planning
- Anxiety/Stress Management



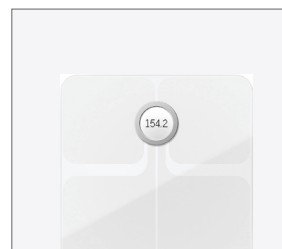
Health Risk Reports

- Nutrition risk
- Genetic/Gut fitness



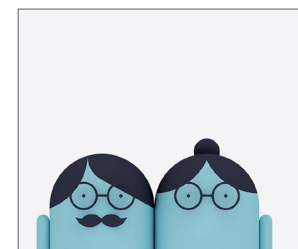
Mobile App

- Lifestyle Vitals tracking
- Intermittent fasting widget



Connected Devices

- Apple + Google Health
- Fitbit Scale integration



Community and Sherpas

- Celebration & rewards
- Healthy habit challenges

References

- [1] <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/groups-at-higher-risk.html#severe-obesity>
- [2] <https://www.weforum.org/agenda/2020/05/why-is-covid-19-more-deadly-for-some-ethnic-groups-than-others-coronavirus/>
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Contact Information

Digbi Health Digbi Health is an innovative, caring company focused on empowering 100 million Americans who are fighting obesity and weight-related illnesses like IBS, acid reflux, hypertension, kidney stone, elevated cholesterol, non-alcoholic fatty liver, chronic pain, sleep apnea and insulin-related disorders like PCOS.

Ranjan Sinha is the CEO of Digbi Health. He is passionate about using food and lifestyle as medicine. He successfully addressed his very own life-threatening cardio-metabolic disorder, which inspired him to help others address

similar challenges. His Master's degree is from Wharton and he's educated in engineering and nutrition.

He began his career at Apple, where he found his love for building products, and has since built and ran large data software, human resources services, and wellness businesses.

Find out how you can partner with Digbi health to deploy these advanced tools to protect your employees and reduce your risk.

Schedule a meeting with our CBO, Scott Levy to learn more: scott@digbihealth.com