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on

Health at Your Fingertips: Harnessing the Power of Digital Health Data

before

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Subcommittee on Health
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Good morning Chairman Buchanan, Ranking Member Doggett, and esteemed members of the Health Subcommittee.

I'm Dr. Kristen Holmes, Principal Scientist and Global Head of Human Performance at WHOOP. As a former NCAA All-American, two-time Big 10 Athlete of the Year, U.S. National Field Hockey Team member, and NCAA Division I National Championship coach, I've dedicated my career to unlocking human potential through data. At WHOOP - a leading American wearable health technology platform - I guide the science that helps to support health and performance optimization in our elite athletes, tactical teams, frontline healthcare workers, corporate professionals, and everyday users.

My goal during today's conversation is to share how we've leveraged real-world data to improve performance, provide more insight into health events like preterm birth, and pioneer features like Healthspan that guide people toward longer, healthier lives - all while ensuring privacy, transparency, and policy-aligned innovation. And while my examples and experiences are focused on WHOOP, the future of health tech and wearables generally will play an important role in impacting health care outcomes, which can also help drive reductions in chronic conditions and overall health care spending.

Our Origin Story: From Athletics to Health

WHOOP was founded in 2012 on the campus of Harvard University with the goal of helping athletes unlock their performance. Our company sought to develop tools to help athletes - from casual fitness enthusiasts to the world's most high profile competitors - achieve their physical fitness objectives. This primarily took the form of scores that compile key physiological metrics and provide a baseline for athletes to better understand their body.

One of our best examples of this is our Recovery Score, which combines heart rate variability, resting heart rate, sleep, and respiratory rate to quantify daily readiness. Grounded in peer-reviewed science, this score is linked to real-world outcomes: for example, athletes demonstrate improved free-throw and field-goal percentages, ice hockey efficiency, better shots in golf, faster exit bat and ball velocity in baseball,

better swim times, and more - all of these performance outcomes correlated with WHOOP Recovery. By managing training load based on recovery, athletes stay healthier and consistently available to train and compete.

But during our company's 13 years in operation, we've discovered that data doesn't just help athletes close to their performance ceiling. While we're proud to be worn and used by professional athletes like Patrick Mahomes, Nelly Korda, Cristiano Ronaldo, and Sha'Carri Richardson, our impact is most felt among everyday Americans who use our product. Americans use WHOOP and other wearables to not just understand their fitness and performance in the gym and on the field but to truly understand their health in new ways.

In 2020, WHOOP played a critical role during the COVID-19 pandemic by leveraging our wearable technology to help respond to the crisis. In collaboration with researchers at Central Queensland University, Harvard, and others, we published peer-reviewed studies showing that changes in respiratory rate could serve as a harbinger for COVID-19 detection up to two days before symptom onset. This published research allowed WHOOP users and users of other wearables to better understand whether they might be at risk of COVID-19 and prompted proactive conversations with their care teams.

Since the COVID-19 pandemic, we have seen a sustained interest among the American population to better understand wellness and health. We consistently hear directly from our American customers that they want more information and data about their bodies and broader health. They want to be empowered to make smarter, more informed choices about their overall well-being. We know we're not the only company that has seen this, as the wearable industry more broadly has grown significantly.

New Tools to Empower Wellness and Health

Responding to the significant interest from our users, WHOOP has expanded into providing new tools and features for comprehensive health resilience.

This includes our most recent launch of Healthspan - a powerful tool that calculates two intuitive metrics: WHOOP Age and Pace of Aging. These metrics, developed in partnership with Dr. Eric Verdin of the Buck Institute for Research on Aging, are grounded in decades of longevity science. The features analyze daily behaviors—like sleep consistency, steps, resting heart rate, and strength training—each directly linked to all-cause mortality risk. But Healthspan is more than a number: it helps focus which behaviors are contributing to your aging trajectory, enabling you to clearly understand how your habits are shaping your healthspan. Our AI coaching doesn't stop at insight - it actively supports progress, offering personalized guidance like, "Add 60 minutes of zone 2 this week to slow your pace of aging". Put simply: Healthspan helps you focus on what's affecting your aging and then tells you what you can do about it.

In addition to Healthspan, WHOOP has also unveiled new wellness tools and metrics in recent years. Our V02 Max feature helps users understand how well their bodies use oxygen during exercise, serving as a predictor of mortality risk as well as performance potential in endurance sports. Our Blood Pressure Insights feature is a new and groundbreaking feature that provides daily systolic and diastolic blood

pressure estimations, offering users a new way to understand how blood pressure affects their performance and well-being.

This year, for the first-time ever, WHOOP also received FDA 510k clearance for our ECG, which is part of our Heart Screener feature. The feature allows users to record an electrocardiogram (ECG) from their wrist. This helps detect potential signs of atrial fibrillation (AFib) and other heart rhythm irregularities. It provides users with on-demand insights into their heart's electrical activity, enabling them to share data with their healthcare providers and stay informed about their heart health.

As we turn to the future, WHOOP is looking to bridge biometric awareness and clinical insight. Our Advanced Labs feature will soon integrate key blood biomarkers - such as cholesterol, glucose, cortisol, and inflammatory markers - alongside continuous wearable signals. This fusion of data will help create a more dynamic, real-time picture of health that is both physiological and biological.

Powering our vision is our work in predictive AI, which has the potential to allow us to forecast health events before they occur, based on a combination of behavior, biometrics, and blood data. And to connect this innovation into clinical workflows, we are exploring partnerships with provider groups, with the goal of eventually integrating longitudinal WHOOP data into electronic health records - enabling a new era of personalized, preventive care. As we build these capabilities, we are also focused on robust validation—through internal studies, employer pilots, and, ultimately, randomized controlled trials that can measure both the health impact and cost-effectiveness of WHOOP-guided behavior change. This is our roadmap—not yet fully realized, but rooted in science and designed for scale.

In all of these features, privacy, consent, and user control are foundational to the design of WHOOP. All personal data is encrypted in transit and at rest. Our privacy framework ensures that users retain full control over their information - they decide if, when, and with whom to share it, including with healthcare providers. WHOOP complies with all applicable privacy laws and follows rigorous internal controls aligned with industry best practices. We are committed to transparency and building trust through clear disclosures and consent-based sharing.

It's important to recognize that WHOOP is not alone. While we're proud of our own science and product roadmap, all Americans stand to benefit from the rapid wave of innovation and the growing array of wellness tools emerging across the broader health tech ecosystem.

Scientific Contributions: From Preterm Birth to Psychological Resilience

Alongside our consumer features, WHOOP powers significant research and scientific advances from our in-house teams and our collection of global partners. We are uniquely positioned, with our 24/7 data sources and repository of trillions of heart beats, to understand new trends in health and science. Some of our recent research may be of interest to the committee:

- **Pre-term Pregnancy Research**. A collaborative study with Dr. Shon Rowan at West Virginia University School of Medicine monitored heart rate variability (HRV) in pregnant women and found a distinct HRV shift about seven weeks before delivery. In our follow up retrospective

study of 241 pregnancies—published in PLOS One—we confirmed HRV inflection timing is predictive of premature birth, marking one of the first digital biomarkers of preterm delivery from an academic–industry partnership.

- **Mental Resilience**. In addition to physical health, WHOOP data is contributing to critical insights in psychological resilience. In a study involving 862 U.S. Army personnel deployed in Alaska, it was not sleep duration, but sleep consistency, that most strongly predicted enhanced mental resilience. This underscores the importance of stable sleep-wake cycles in buffering psychological stress in high-demand environments. Such findings demonstrate that wearables like WHOOP are not only optimizing physical performance but are also scaling access to mental fitness tools—supporting mission readiness and everyday emotional wellbeing alike.

- **GLP-1 Medication and Movement**. We conducted a 12-week study using WHOOP data to explore how users' exercise and movement patterns influence their use of GLP-1 therapies. The findings are among the first to provide daily insights into cardiovascular and behavioral responses following GLP-1 RA initiation. Substantial weight loss and significant increases in resting heart rate mediated by reductions in heart rate variability during the initial 12 wk of GLP-1 RA therapy were observed. In addition, trends suggest an increase in physical activity with GLP-1 therapy, and that physical activity may help to temper GLP-1 RA-associated increases in resting heart rate.

- **Health Economics and Outcomes Research**. We are currently launching Health Economics & Outcomes Research (HEOR) - beginning with pilots conducted internally and in partnership with leading companies. These will precede larger randomized controlled trials designed to assess behavior change - such as increased activity, better sleep, improved mood, and reduced alcohol consumption - and their downstream effects on healthcare usage and costs. Industry-wide evidence suggests that wellness initiatives return between $1.50 and $6 for every dollar invested; our study aims to quantify the impact of our wellness initiatives. For employers and the federal government, wellness products - and specifically wearables like WHOOP, which give individuals data and the tools to motivate and change behavior - have the ability to reduce chronic care, health insurance costs, increase productivity and contribute to a healthier and happier workforce.

These are among the hundreds of research projects that we have undertaken in recent years and that are possible due to the improvements and availability of wearable technology. Importantly, WHOOP publishes all our major findings in publicly available, peer-reviewed research outlets, not behind locked systems. We ensure scientific transparency - sharing methods, data insights, and results so practitioners, policymakers, and the public can verify, learn, and build on our work.

Policy Implications and Outlook

All of these advancements rest on a supportive policy environment. Legislative and regulatory frameworks—such as the 21st Century Cures Act and the FDA's General Wellness Guidance—have enabled digital health innovation at companies like WHOOP. It's vital that Congress preserve and expand these "innovation zones." Wellness insights such as HRV, sleep staging, resting heart rate, respiratory rate, blood pressure insights, coaching, and longevity insights must remain in the consumer-accessible

segment, while features like ECG that detect atrial fibrillation and other clinical conditions should continue through appropriate medical review. WHOOP understands and respects this distinction well: we were proud to work with the FDA to achieve our first medical clearance for our ECG feature earlier this year, while continuing to provide our consumers with insights through our general wellness tools – just like other wearables on the market.

In summary, wearable biometric data is transforming from novelty to necessity. By delivering continuous insight, real-time coaching, clinical context, and predictive analytics, WHOOP as well as other wearables are helping individuals stay ahead of health decline - shifting care from reactive to proactive, from episodic to continuous. With smart policy supporting this trajectory, we can truly put health at people's fingertips - helping Americans live longer, healthier lives.

Thank you for this opportunity. I look forward to your questions.