

Science with a Passion

Healthcare Academy lands premier Ph.D., and students say he delivers

Dr. Howard Jacob once ran through a police blockade in Germany just to talk about genetics.

His DNA sequencing of an ill child who hadn't eaten in nine months led to a bone marrow transplant and allowed the boy to devour a steak 42 days later.

Last week, he worked 31 hours straight from Saturday morning to 4 a.m. Monday.

"I'm fine with that," he said.

And Menomonee Falls High School was fine with listening. Science was cool.

Not that it wasn't before, but this wasn't your run-of-the-mill textbook science lecture some students expected to be a drag, even for the Healthcare Academy.

"We were expecting a big science talk. He made it interesting. He articulated why he was so passionate about what he does," said senior Samantha Schlicht, an aspiring physician's assistant.

Jacob is a rock star of science and medicine. He's a nationally sought after speaker once featured on "Nova," is a professor and director of the Human and Molecular Genetics Center at the Medical College of Wisconsin and is a vice chair of Research in the Department of Pediatrics at Children's Hospital of Wisconsin.

Science teachers Amanda Gilman and Dana Kopatich met Jacob last summer while taking a class at the medical college. They took a chance and ask if he would come to speak, and he agreed.

Students will never forget it. Jacob was interactive and down-to-earth, and he answered all of the students' questions.

"He turned everything back on us – what are our opinions on the topic," said senior Emily Suetholz, who wants to be an anesthesiologist or pediatrician.

"It was an honor he was here. It's a once-in-a-lifetime thing," said senior Dia Vang, an aspiring nurse.

Jacob told students 20 percent of people taking a popular heart attack drug at \$1,500 per month aren't receiving any benefit because they don't have the right gene for the medicine to help.

Reading a person's entire genetic code has gone from costing billions of dollars to a thousand, and, typical of technology, the price keeps coming down. Jacob said in a couple of years it will cost \$200 to read an entire human genome in 20 minutes.

"You can prick your finger and it will read your DNA for you. That's insane," said senior Jackie DeWalt. "After the presentation it's really



hitting me. Our kids could be getting sequenced."

Jacob brought up moral, ethical, religious and political issues that will be addressed in these teens' lifetimes.

"Should your parents know if you're at risk for Alzheimer's?" he said. "What if you don't want to know?"

How much medical information life insurance companies should have and how they may use it, living wills and "pulling the plug" if someone is on life support – which Jacob said he would have a hard time doing if his teen daughters were ever in such a situation.

"Laws are going to be written on this," he said. "Pay attention."

Jacob paid attention enough to get to college. He scored a 27 on the ACT and struggled through graduate school at Iowa State. He didn't like school, but he wanted to be a scientist since he was 5. He determined to "get through it," and the rest is

history.

"I don't go to work a day in my life. I love what I do," he said.

Beyond the science, that was Jacob's key message: Find your passion and do it.

"We hope we find a career like that," said DeWalt.

He found his, and Menomonee Falls' students are looking for theirs. DeWalt thought he found it in wanting to become a doctor, but Jacob's candid line of "26 years of school" has the senior looking into occupational therapy instead.

This wasn't learning from a textbook, though Jacob could be considered a walking open one. This was a real scientist who answered questions about work-family balance and paying for college.

"We're learning from a person that wrote the books," DeWalt said.

"It was more personal because he was right there," said Vang.

One human's DNA is as long as 666.5 round trips between the Earth and the Sun.

Hot career areas in science and medicine: Bioinformatics; Chemical genetics/Pharmacology; Computer modeling; Comparative Genomics; Human Genetics; Integrative Physiology/ Systems Biology; Medical Informatics; Proteomics Statistical Genetics;; Translational Medicine (MDs with a PH.D. or experience in clinical research)

A human has 30,000 genes.
A fruit fly has 15,000.
"You're only twice as complex as a fruit fly." - Dr. Howard Jacob.