

Study: Tiny components of SoCal haze invade human cells

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The Associated Press

LOS ANGELES (AP) - Some of the tiniest airborne particles found in urban haze can invade and shut down cells in human lung lining - and in animal cells that act as a defense against disease - according to a study by researchers at two universities.

Their findings go beyond previous studies that much larger components of smog are a factor in shortening life span due to reduced lung function, heart disease and cancer. The new study says small particles can penetrate and deform cells such as those in lung lining and kill the cells by cutting off their power source.

The study was conducted by researchers at the University of California, Los Angeles, and the University of Southern California. "We have had no idea of the biological potency of different size particles in the air," said Dr. Andre Nel, a UCLA researcher and physician who was lead author of the study.

"Even in the (airborne) things so small they are not monitored, there may be danger lurking," Nel said Monday. He said government air-quality monitoring covers particles collected on filters, while his group's study concentrated on particles so small they go right through air filters.

The study collected microscopic particles at two locations in the Los Angeles area and tested them on human cadaver lung lining and mouse protective cells in an effort "to explain how the smallest particles cause adverse health effects," Nel said.

Causing the cell damage in the study were tiny particles that help make up gray urban haze. The particles were collected in the USC campus area and at Claremont, east of Los Angeles, by 10 members of the study team.

Many of the tiniest particles capable of doing the interior damage to cells "are derived from vehicle emissions," Nel said Monday. They measure only one-tenth of a micron (one millionth of a meter) across and even smaller. The particles were at least 25 times smaller than the size of dust and smoke components that are covered in existing environmental air-quality regulations.

Smog particles of 2.5 microns across or larger are currently regulated in an effort to prevent 15,000 premature deaths, 350,000 cases of asthma and 1 million cases of lung problems in children by the year 2020.

The new study is to be published in the journal Environmental Health Perspectives, a publication of the National Institute of Environmental Health Sciences. One of five national particle-pollution research centers established by the government is located at UCLA.

The researchers collected microscopic air particles between November 2001 and March 2002, put them into solution and added it to macrophage cells of mice that destroy foreign matter, and to linings deep inside lungs from a human cadaver.

The solution with the particles caused chemical reactions and triggered inflammation such as that of asthma or other respiratory disease, Nel said. But deeper within the cells the tiniest pollution particles also damaged cell structures called mitochondria which combine sugar and oxygen to produce fuel that keeps cells running.

Melanie Marty, chief of air toxicology and epidemiology at the California Office of Environmental Health Hazard Assessment, commented that the UCLA-USC study shows more governmental attention should be directed to the tiniest particles in urban haze "because of their toxicity and ability to produce this stress in the cell."

Fernando Scaglia, a molecular and human genetics professor at Baylor College of Medicine in Houston said damage to mitochondria in cells can also lead to various diseases including Parkinson's and Alzheimer's, as well as strokes and other neurological impairment.

[Letter to the Editor, Bakersfield Californian](#)

April 6, 2003

Businesses commended

Thank you, *Californian*, for the good news in your March 31 article, "Solvent to help clear valley's air." As mayor, I am committed to improving the quality of life for our residents. Clearly, clean air tops my list.

Your article brought to light all the hard work and caring behind this corporation's civic effort in making this change. All too often, companies fight the stereotype that, as a large corporation, they are only interested in making money and taking advantage of the community. You have shown us that the opposite is true. I know that companies throughout our city are working every day to make this a better place to live for everyone.

The state of California considers perchloroethylene (perc) a carcinogen. Its most extreme risk is cancer. With this in mind, I believe it is beneficial to treat all chemicals with respect. Dry cleaners who raise the bar by taking a stand for their communities and bear the cost and risk of operating a chemical-free environment are to be commended.

Thank you to all our local businesses for putting the well-being and safety of our community above their own profit. You are making a difference!

MAYOR HARVEY HALL, Bakersfield

Getting her kicks for Guam

By BOB VARMETTE, *Californian* staff writer

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Events half a world away have reached all the way to the soccer fields of Bakersfield. Kelly Hogan Malay can only wait.

Hogan Malay has lived in Bakersfield for two years. [She's a public information officer for the San Joaquin Valley Air Pollution Control District.](#)

Hogan Malay, 29, is also a left midfielder for Guam's women's national soccer team. She was scheduled to leave Wednesday for Guam to get in a few days training with her teammates before the team left for Bangkok, Thailand, for the 2003 Asian Football Confederation Women's Championship.

Hogan Malay and her teammates were scheduled to play their first match April 17 (April 16 PDT). But now the match against Taiwan, and the rest of the tournament, has been postponed by the Severe Acute Respiratory Syndrome (SARS) outbreak.

"I'll just stay here until I get more details," Hogan Malay said. "You don't want to send your athletes out there to face the risk. ... I do hope this gets settled down so we can play as soon as possible."

Thailand is one of the countries affected by the SARS outbreak. Singapore, Taiwan, China, Hong Kong and Vietnam, which are all sending teams, have also been affected.

"AFC's top priority is to safeguard the health and welfare of the players, the officials and fans," AFC General Secretary Dato' Peter Velappan said on the organization's website. "We have decided that it is not safe to continue with this tournament."

Velappan said the AFC will maintain close contact with health authorities in Thailand and the other affected countries. Only when health authorities OK the tournament will the 2003 AFC Women's Championship be rescheduled, Velappan said.

But the tournament will have to be rescheduled sooner rather than later. The draw for the FIFA Women's World Cup will be May 24.

Also, the third-place team from the AFC Women's Championship will meet Mexico in a two-match home-and-home series for a spot in the Women's World Cup, scheduled for Sept. 23-Oct. 11 in China. That series is scheduled to begin May 10, with the second match set for May 17.

So Hogan Malay will have to sit and wait to find out when the tournament will take place. But she is philosophical, saying the extra time to prepare will only help the Guam team, and herself individually.

"The team has only been training since late January," Hogan Malay said. "The extra time helps a little bit. I feel the same way for myself. I need more touches on the ball. Nothing's ever wrong with getting more practice."

While she waits, Hogan Malay will continue to train individually and with coach Leslie O'Connor's Millennium Soccer Club 18-and-younger and 13-and-younger squads. Hogan Malay only started working out with Millennium last week.

"It's a really good opportunity for them to rub shoulders with somebody at that level," O'Connor said. "It's a great stepping stone for all of them."

"Kelly has always been looking for somewhere competitive to practice and to play. She put in a call, and I said, 'No problem at all. I'd love to have you out here.'"

In addition to the training, Hogan Malay currently plays on three soccer teams: SYB plays in the Bakersfield Organized Women's Soccer league, and the Bakersfield-based WPS co-ed team and Newark United out of San Jose are tournament teams.

Hogan Malay is a very good athlete and a very talented soccer player. But she knows very well the reality of her situation.

"I feel very -- it's more than very -- incredibly honored to have the opportunity," Hogan Malay said.

"Guam is home to me, and I feel incredibly honored to be called upon to represent Guam."

Representing my island is really important to me."

But Guam will not likely earn one of the top three spots from the 14 national sides competing in Thailand. The defending AFC women's champions, the North Koreans, will be a favorite to repeat. The Japanese and Chinese sides, stocked with professional players and backed by strong national organizations that can draw from literally hundreds of thousands of potential players, are arguably two of the better teams in the world.

"It's a great opportunity for anybody to have," said Sam Parks, Hogan Malay's boyfriend and a former women's coach. "To be able to step on the field with some of the best players of the world is incredible. It would be like being a boy in the United States and getting to step on the field in the major leagues. It's an honor just to be there."

Hogan Malay is realistic. She hopes Guam will be competitive in matches against the countries of Myanmar and the Philippines. Against Japan and Taiwan, Guam will be routed.

It would require a miracle for Guam to make it out of group play. The players will head home and the tournament will continue without them.

"We can pretty much buy our airplane tickets and not worry about it," Hogan Malay said. "We know. But I would rather be there getting my butt kicked by Japan than not be there and not play, any day."

Born in Ohio, Hogan Malay never thought she would have the opportunity. But at 7 years old, she moved with her family to Guam, a small organized, unincorporated U.S. territory of about 161,000 people located in the North Pacific Ocean across the international date line.

It's not a soccer mecca. It was even less so when Hogan Malay was growing up in the 1980s. She remembers hideous hand-me-down uniforms, practicing on fields of chopped-down sword grass and having to go to a naval base on the island to find matches to play. Despite it all, Hogan Malay continued to play.

She earned an academic scholarship to the University of San Francisco and played soccer for the Division I Lady Dons. She later transferred to the University of Hawaii, playing on the women's club team before the school jumped to Division I competition. Hogan Malay then completed her degree and her collegiate soccer career at the University of Guam.

After graduation, she kept playing on teams in Guam club soccer leagues. And she helped push the Guam Football Association to form a national women's team, which finally came to fruition in 1996 and played its first international match in 1997.

"I kept playing because I'm happy when I play soccer, when I'm out on the field," Hogan Malay said. "I enjoy it. If we're playing pickup, if we're training, if we're playing in a game, I have a good time."

From 1996 to 2000, Hogan Malay started every international match for Guam. She was the player of the game in Guam's 2-0 win over Hong Kong in 1999 and was selected 1999 Women's National Team Player of the Year by the Guam Football Association.

In addition, she's been a member of numerous soccer organizing committees and has undergone coaching training in Guam, Fiji and Malaysia, receiving her "C" coaching license from the AFC in 1995.

"We're counting on that experience and her knowledge of the game," Guam coach Thomas Renfro said. "Her big-time experience and leading the team in adverse situations is invaluable." Hogan Malay has been both a captain and co-captain for Guam's national team, in addition to being one of the program's most experienced players. She doesn't think of herself, individually, as a role model, though.

She's part of a team, she said, that is a collective role model for all soccer players in Guam. And Hogan Malay knows the soccer future of Guam will be watching.

"I have a lot of humility about my situation," she said. "I'm just a good player who is incredibly fortunate to have the chance to compete for my national team."

But for now, Hogan Malay can only wait until health officials half a world away give the go-head for the tournament.

"It's probably a wise decision to delay it," Hogan Malay said. "I want to play, though."