

HEALTH

A Newborn Grandson



Yvetta Fedorova

his lungs and the rest of his body, enabling blood to better flow through his lungs. A feeding tube was inserted and an intravenous line was established. Two potent antibiotics were given through the IV to treat what was believed to be congenital bacterial pneumonia. Other lines measured blood gases, blood pressure and respiration and heart rate around the clock. Baby T was more than a baby.

In addition, Baby T had to be sedated, both to keep him from pulling out the tubes and to minimize the stresses that caused his oxygen level to plummet.

Looking for Good Signs

His first four days of his life were considered critical. If his condition worsened or improved, it was considered a good sign. We were painfully aware of a horrifying statistic: nearly every baby in five with persistent pulmonary hypertension dies. But Baby T rallied, his lungs doing more and more of the work. After five days he was able to get off the ventilator and begin taking tiny amounts of breast milk by mouth. He handled the tube, and was soon ready to breathe directly from the breast.

We celebrated Thanksgiving on the day when we had good reason to believe Baby T was all right. He weighed some a week later only two percent below his birth weight and was eating eagerly.

Though no one can say for sure what causes this disorder, various factors that occur in pregnancy, as

well as certain diseases or congenital conditions that affect a baby's lungs, have been linked to it. In the mother, precipitating stresses may include diabetes, high blood pressure, anemia or delivery after 40 weeks of pregnancy. In the baby, aspiration of meconium, anemia, severe pneumonia, low blood sugar and birth asphyxia have been associated with the disorder.

A baby with it is likely to breathe rapidly and have a fast heart rate. Signs of respiratory distress include flaring nostrils, grunting and a bluish tinge to the skin.

As in Baby T's case, when oxygen is in short supply, the brain is preferentially spared, which is why his face remained pink even when his abdomen and legs looked grayish. Had oxygen-rich blood not been circulated throughout his body fast enough, his kidneys, liver and heart and ultimately his brain would have been damaged or destroyed.

This is why proximity to a well-equipped neonatal intensive care unit, a neonatologist and a well-trained nursing team is so critical. Even in a seemingly ideal pregnancy and birth, you just never know when something will go wrong.

Had Baby T not responded adequately on his own, other measures would have been necessary that required transferring him to another hospital. Studies have shown that supplying inhaled nitric oxide to newborns with persistent pulmonary hypertension often has a relaxing effect on pulmonary blood vessels, enabling them to fill with blood sent from the heart.

And if that doesn't work, a last resort is to place the baby for several days on an extracorporeal membrane oxygenator — essentially a heart-lung machine — which involves major surgery and expert monitoring. This treatment, which gives the baby's lungs a chance to kick in, is reserved for the sickest babies because serious side effects can set in.

Even the minimal treatment Baby T received could have lasting consequences, including speech development and hearing problems. He will be periodically evaluated for them.

Meanwhile, we are all immeasurably grateful for medical progress. Not even 20 years ago nearly half those with persistent pulmonary hypertension of the newborn died; that number is now less than 20 percent, with only one-fifth of survivors experiencing long-term complications.

When Pressure Is On, Good Students Suffer

By BENEDICT CAREY

At schools across the land, students are engaged in that most secular December ritual: sweating midterm exams. And in a new study of math testing, psychologists are reporting that intense exam pressure is actually more likely to impair the performance of very good students than mediocre ones.

Rushed, worried about pleasing others, these students can lose their most valuable intellectual asset: short-term or working memory, the ability to keep numbers and thoughts in a kind of holding pattern while focusing on the problem at hand. Motivated students whose working memories are less powerful are less likely to fold under exam pressure, the study found.

The experiment, to be published in the February issue of *Psychological Science*, adds to a growing understanding of what impairs intel-

Working memory can founder at exam time.

lectual performance and in whom, said Dr. Randall Engle, chairman of the psychology department at the Georgia Institute of Technology in Atlanta, who was not involved in the research.

"The finding makes very little sense on one level; the better kids should do better, right?" he said. "But we know from other work that this is what happens on some tasks: You put some extra intellectual load on people with these skills, and their performance just drops off."

In recent years, psychologists have refined the notion of short-term memory. Once thought to be a kind of intellectual breadbasket that could hold one, several or many numbers and words depending on its size, it is now described as more like a mental food processor that helps shape ingredients while keeping the mind focused on that task at hand.

People with strong working-memory skills tend to rate high on intellectual aptitude, experts say,

because analytical skills and creative thinking depend on this short-term-focused processor.

In the study, Dr. Stan Beilock of Miami University of Ohio and Dr. Thomas Carr of Michigan State University tested the working-memory capacities of 93 Michigan undergraduates, and split them into two groups, a high-functioning working-memory group and a low one.

The students then took two other math tests, under vastly different conditions. One was called a practice test. In the other, the students were told they were part of a team that was depending on them to improve their score in order to win a monetary reward.

The results were striking: the group with high working memory scored about 10 percent better than the others on the low-pressure practice test, but the two groups' scores were about equal when the heat was on to perform. "The main finding is that the environment in which people take a test may diminish its validity," said Dr. Beilock.

Out in the world, or at least in the classroom, some students with good working-memory abilities clearly phase out the effects of the pressure and perform very well. But Dr. Beilock said the study showed how fragile this short-term intellectual machinery was when students were asked not only to concentrate an unwavering mental beam but to fend off dread of failure, a ticking clock and self-doubt.

The students with less working memory are less affected by the pressure because they are probably relying on less taxing techniques to handle problems, the researchers argue. These students may do more estimating than careful computation; they may see patterns in the problems and apply those; they may guess more often than their peers.

But one of the most effective ways to shield intellectual skills from the swirl of pressure, competition and grade fixation is to make the problem-solving strategies needed to perform well more automatic. "Once a skill has been trained up to a point, the differences in working memory become less important, and you're not as vulnerable," Dr. Engle said.

At schools across the land, they have a word for this technique: studying.