

HOW TO COPE WHEN
A PARTNER CHANGES

**DNA
DILEMMA**
WANNA KNOW IF
YOU'RE DOOMED?

THE REBIRTH OF
PSYCHOANALYSIS

**WHAT
AUTISM EPIDEMIC?**
5 FACTS ABOUT A
SCARY DIAGNOSIS

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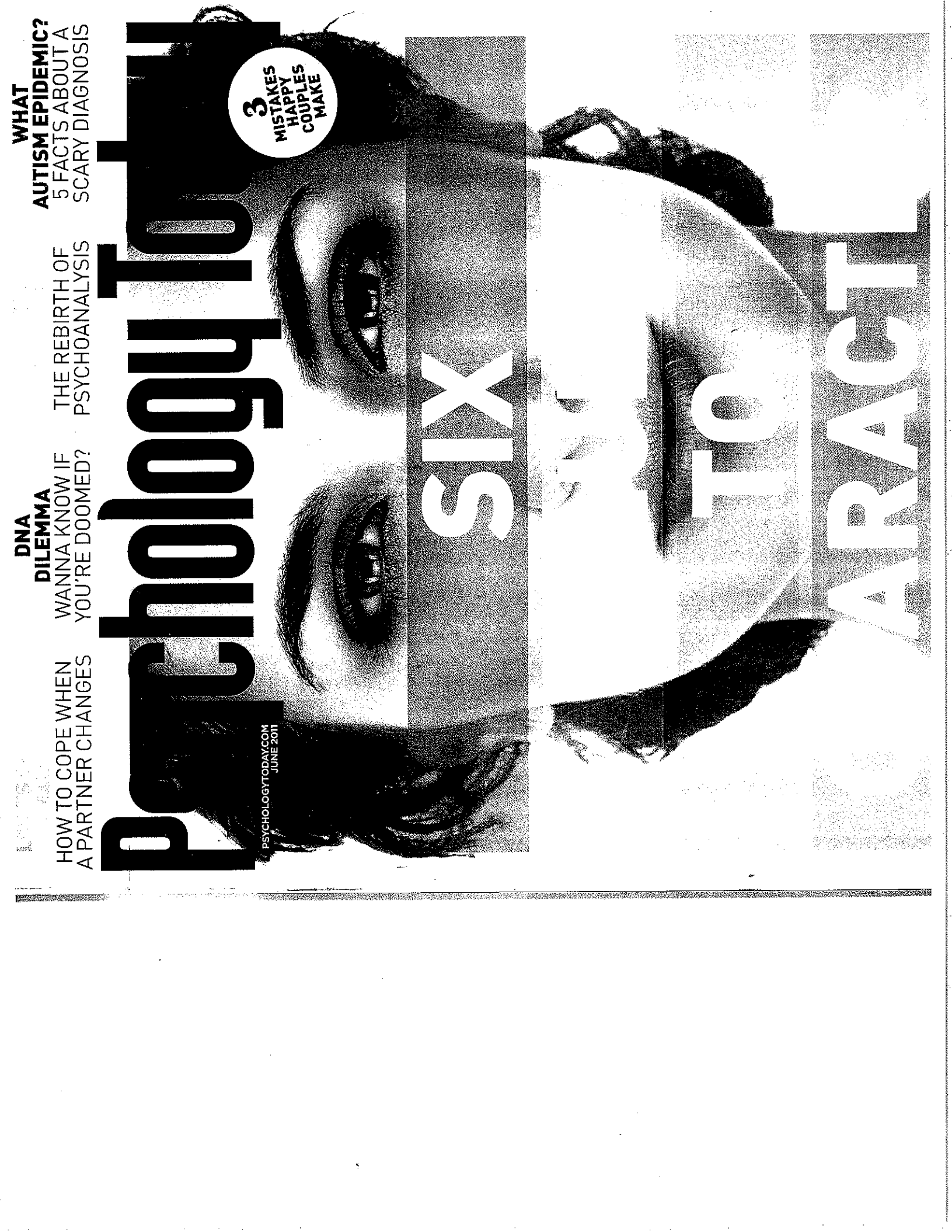
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MISTAKES
HAPPY
COUPLES
MAKE

SIX

SIX

TO

CHARACTERS



READ MY BLOOD

New blood tests for psychological illnesses are changing the way we think about mental health.

CANCER HAS THE biopsy, kidney disease has the urine test, and HIV has the cheek swab, yet diagnosis for mental illness is often nothing more than a survey or a conversation with a psychiatrist. A lack of distinct biological markers of disease could be doing huge disservice to patients, says Alexander Niculescu, a psychiatrist and neuroscientist at the Indiana School of Medicine. "If you can demonstrate you're dealing with a biological abnormality just like all the other medical disorders," he says, "you'll not only destigmatize the illness, but also pave the way for better treatment."

Analyzing brain chemistry is notoriously difficult because extracting a tissue sample could have disastrous consequences on cognitive function, and fMRI provides limited information. Blood tests are an attrac-

tive option, not just because they're cheap and commonplace, but also because blood can provide useful indications of brain state. (For more on biological testing, see *To Know or Not to Know*, page 70.)

Though the field is progressing rapidly, some experts caution against prematurely jumping onto the bandwagon. "It's too early to be directly marketing blood-based expression tests to consumers," says Stephen J. Glatt, a psychiatrist at SUNY Upstate Medical College. At this stage of development, blood tests, he stresses, would only offer false hope and false certainty.

Still, there is a demonstrable biological connection between brain and blood, Glatt adds: "Be hopeful, but be skeptical and patient." Here's a snapshot of progress in the field.

—Tarah Knaresboro

■ ANXIETY

New animal research from the Rudolf Magnus Institute of Neuroscience in the Netherlands has linked anxious behavior to low levels of magnesium in the brain, suggesting that someday, a simple blood test of magnesium levels may help diagnose anxiety. Researcher Marijke Laarakker also suspects that manipulating magnesium levels may alleviate symptoms; research is ongoing.

■ ALZHEIMER'S DISEASE

Today, the only surefire way to diagnose Alzheimer's is by identifying the disease's signature tangled brain fibers in postmortem tissue. A test for living patients would allow for proper planning and, perhaps, intervention. Tom Kodadek, a biologist at the Scripps Research Institute in Jupiter, Florida, has developed just that: a blood test that uses synthetic antigens (proteins that spark an immune response) to track down Alzheimer's-fighting antibodies.

The resulting test is more than 90 percent accurate in blind studies of patients and controls. It pulls 8 percent false positives and no false negatives, according to results published in *Cell*. Kodadek suspects the false positives are in fact early indicators of dementia to come; he hopes the test might one day be predictive, not just diagnostic.

■ SCHIZOPHRENIA

Rather than finding a blood biomarker for this complex disease, Alexander Niculescu's team sought markers for two key symptoms: hallucinations and delusions. They examined the array of genes expressed in the blood of schizophrenics (vs. healthy controls) and ranked a list of genes that were unique to patients with symptoms.

Scientists measure how closely a given subject's gene expression matches the genes they've singled out for predictive potential. The test is 60-80 percent accurate at detecting the disease; Niculescu expects it to hit the market in three years, bolstered by a recent \$1.5 million NIH grant.

■ DEPRESSION

Depression is traditionally self-reported, leading to a fair amount of underdiagnosis or misdiagnosis, says Dutch researcher Sabine Spijker. Her team is developing a blood test that functions similarly to the schizophrenia test: They extracted blood samples and sifted through the expressed genes for depression predictors. The results (published in *Biological Psychiatry*) show about 70 percent accuracy—a solid first step toward an objective measure for depression, Spijker says. She thinks a depression blood test will be commercially available within five to 10 years.

