

Teens

BEFORE THEIR TIME

With budding breasts and pubic hair, girls are developing earlier than ever. What's causing it? And what are the psychological effects?

By MICHAEL D. LEMONICK

MARISSA CARTER, A GALVESTON, TEXAS, HOUSEWIFE, COULD not believe it when her daughter Sharon, at the tender age of 4, seemed to be developing breasts. The tiny buds that appeared on the little girl's chest were gone within a couple of weeks, but three years later, they reappeared, and this time they grew—along with pubic hair and hair in Sharon's armpits. "I felt this was too early for her to be developing," recalls Carter. "Gosh, I was flat as a board at her age."

So after a series of medical consultations, the Carters (all these names have been changed at the families' request) put Sharon on lupron, a hormone that slams the brakes on puberty—only to see their happy little girl go into terrible mood swings. "I had a child acting like she was in menopause," says Carter. The parents decided to stop the treatment, and by age 9, Sharon had full-blown breasts and was getting her period.

Laura Stover took her daughter Karen to a specialist when the girl began growing pubic hair at age 5. The doctor put Karen through a battery of blood tests to rule out ovarian tumors (which can force glands to churn out puberty-triggering hormones). But there was no apparent medical problem, and by age 8, Karen had full pubic growth. "We didn't allow her to go to any slumber parties," says Stover. "Or to change bathing suits in front of other children."

Cecilia Morton, in Santa Maria, Calif.,

has not one but two daughters who developed early. Clara, now 13, started sprouting breasts and pubic hair when she was 8 and began menstruating a year later, at summer camp. Says her mother: "It was scary and embarrassing because the girls in her cabin didn't have their periods yet." Then Clara's little sister Susan, a kindergarten, began developing at the same time. Although Susan's tests were normal, Morton put her on hormone treatments.

"We already see how men look at Clara," she says. "If my younger one didn't have the medication, I can't even imagine the problems we'd be having."

If these were isolated cases, they might be chalked up to statistical flukes. But it seems as if everywhere you turn these days—outside schools, on soccer fields, at the mall—there are more and more elementary schoolgirls whose bodies look like they belong in high school and more and more middle schoolers who look like college coeds. "Young girls [in the 5-to-10-year-old range] with breasts or pubic hair—we

encounter this every day we're in clinic," says Dr. Michael Freemerk, chief of pediatric endocrinology at Duke University Medical Center in Durham, N.C.

It's as if an entire generation of girls had

**“GIRLS WHO
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been put on hormonal fast-forward: shooting up, filling out, growing like Alice munching on the wrong side of the mushroom—and towering Mutt and Jeff-like over a generation of boys who seem, next to the girls, to be getting smaller every year (see box).

What's going on? Is it something in the water? That's a possibility. Scientists think it may be linked to obesity, though they've also proposed a witches' brew of other ex-

what causes early development?

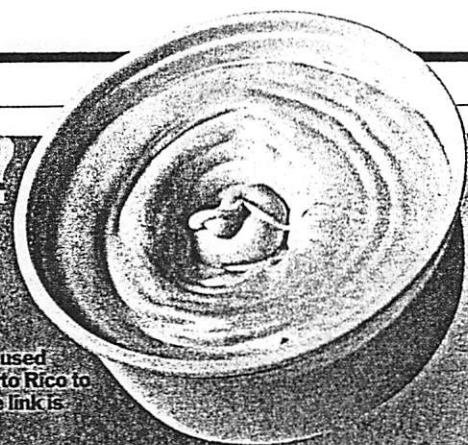
Doctors suspect fat cells, but pesticides, chemicals and hormones in food could also be involved

PCBs

These long-lived chemicals, once used in the electric power industry, may jump-start reproductive development

PHTHALATES

A study speculates that they may have caused two-year-olds in Puerto Rico to grow breasts. But the link is far from proved



planations, from chemicals in the environment to hormones in cow's milk and beef. But the truth is that all anyone knows for certain is that the signs of sexual development in girls are appearing at ever younger ages. Among Caucasian girls today, 1 in every 7 starts to develop breasts or pubic hair by age 8. Among African Americans, for reasons nobody quite understands, the figure is nearly 1 out of every 2.

Even more troubling than the physical changes is the potential psychological effect of premature sexual development on children who should be reading fairy tales, not fending off wolves. The fear, among parents and professionals alike, is that young girls who look like teenagers will be under intense pressure to act like teenagers. Childhood is short enough as it is, with kids bombarded from every direction by sexually explicit movies, rock lyrics, MTV videos and racy fashions. If young girls' bodies push them into adulthood before their hearts and minds are ready, what will be forever lost?

The danger, as authors Whitney Roban and Michael Conn pointed out in a report for the Girls Scouts of America called *Girls Speak Out*, is that the stages of childhood development—cognitive, physical and emotional—have got out of synch. Roban and Conn call this “developmental compression” and pepper their study with poignant quotes from girls struggling to cope with pressures they are ill equipped to handle. “Boys,” complains a fourth-grader in their report, “are gaga over girls with breasts.”

In retrospect, pediatricians and psychologists say, there have been hints for the past decade or so that something strange was going on. But it wasn't until 1997

that anyone put her finger on it. That's when Marcia Herman-Giddens, now an adjunct professor at the University of North Carolina School of Public Health, published her famous paper in the journal *Pediatrics*. Herman-Giddens noticed in her clinical work that more and more young girls were coming in with breasts and pubic hair. Intrigued, she launched a major study of 17,000 girls to get a statistical handle on the problem.

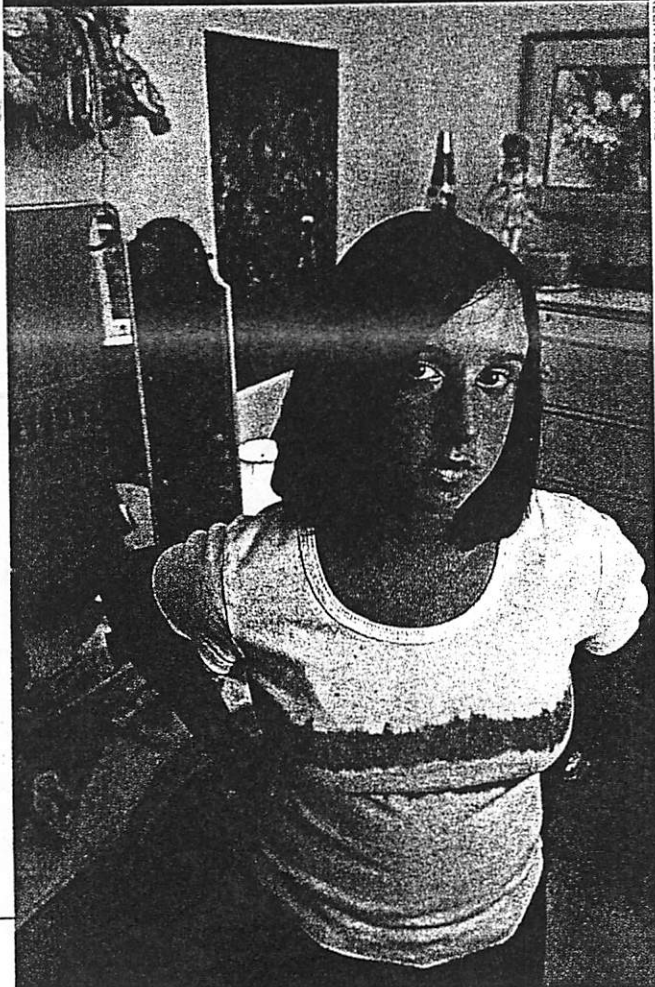
What she and her colleagues found was that the changes of puberty were coming in two stages, each with its own timetable.

The average age of menarche, or first menstruation, had already fallen dramatically (from 17 to about 13) between the middle of the 19th century to the middle of the 20th—mostly owing to improvements in nutrition. (Menstruation is considered the technical start of puberty; the outward signs of sexual maturity usually come earlier.) But since the 1960s, average age of first menstruation has basically remained steady at 12.8 years. For African Americans, it's currently about six months earlier, possibly reflecting genetic or nutritional differences.

What was striking about Herman-Giddens' report was the onset of secondary sexual characteristics: breast buds and pubic hair. Significant numbers of white girls—some 15%—were showing outward signs of incipient sexual maturity by age 8, and about 5% as early as 7. For African Americans, the statistics were even more startling. Fifteen percent were developing breasts or pubic hair by age 7, and almost half by age 8.

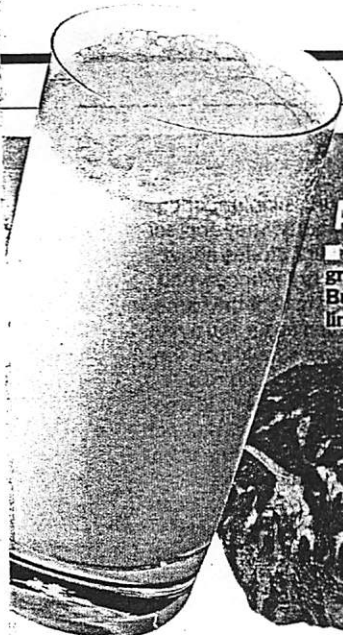
The *Pediatrics* report answered many questions, but much about the subject remains a mystery. The study couldn't accurately gauge, for example, how much the average age of onset of breast development (as opposed to menstruation) has dropped or over what period. That's because a key piece of research that helped set the standard age at 11 was a small study in the 1960s of white girls raised in English orphanages. But Dr. John Dallas, a pediatric endocrinologist with the University of Texas Medical Branch in Galveston, points out that the British girls may have been poorly nourished—a factor known to delay puberty. African-American girls were studied even less rigorously. “For all we know,”

AHEAD OF HER PEERS Emily Jacobson Ranalli is 12, but says she's been taken for 17. Getting her period at 11 was “weird”



LAUREN GREENFIELD FOR TIME

FROM LEFT: FOODPIX; STEVEN NEDHAM—ENVISION



HORMONES IN MEAT AND MILK

They're given to help cattle grow bigger, produce more. But some think the hormones linger in food and wreak havoc.

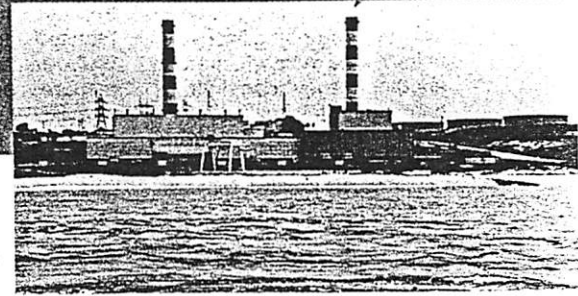


FAT CELLS

Leptin, a protein secreted by these cells, is involved in the progression of puberty. The nation's obesity epidemic makes leptin a prime suspect.

DDE

Though the U.S. banned the pesticide DDT in 1972, this breakdown product persists in the environment.



weight gain. America is in the midst of an epidemic of overweight and obese kids; between the

says Dallas, "African-American girls could have been earlier developers for a long time."

The *Pediatrics* study is also limited because it does not include enough Asian-American or Hispanic girls to draw conclusions about these groups. Herman-Giddens agrees: "We in the public health and medical community really need to get data on American girls of all racial and ethnic groups." They also need to get data on boys, who haven't been studied in any systematic way. Herman-Giddens is pursuing the question now but says it isn't easy. "With girls," she says, "you can see breasts budding. With boys, the equivalent sign is an increase in size of the testes. It's very subtle. Even a physician may not be aware of it if they are not looking carefully."

Finally, somebody needs to look at what's going on in other countries. Is this a peculiarly American phenomenon? Or are girls developing breasts and reaching puberty at younger and younger ages all over the world?

THE UNCERTAINTIES SWIRLING around the phenomenon make it difficult for scientists to nail down a cause, but that hasn't stopped them from coming up with a long list of potential candidates. The theory that has the broadest support among scientists holds that early puberty is somehow tied up with a much more familiar phenomenon:

late '70s and the early '90s, the percentage of children ages 6 to 11 who were overweight nearly doubled, from 6.5% to 11.4%, according to the National Center for Health Statistics.

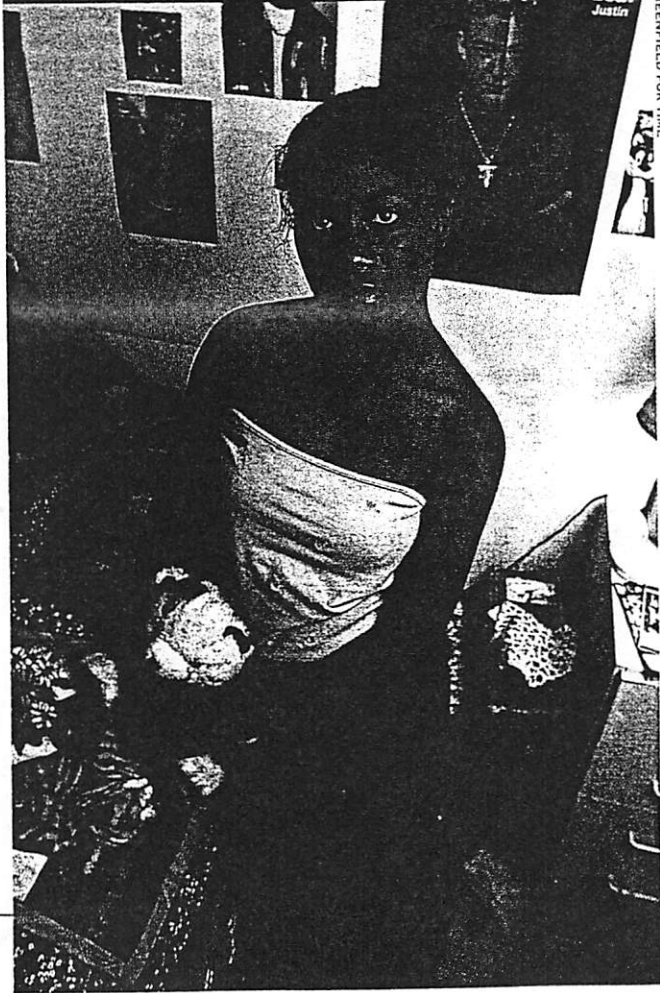
Dr. Paul Kaplowitz, a pediatric endocrinologist with the Virginia Commonwealth University School of Medicine in Richmond, Va., explains, "We've known

for a long time that very overweight girls tend to mature earlier, and very thin girls, such as anorexics, tend to mature later than normal. We think mildly overweight girls may be maturing early as well." Kaplowitz emphasizes that the correlation is merely statistical; not every girl with a little extra baby fat will develop breasts early.

Exactly why obesity and early development should be linked is not well understood. But Kaplowitz suspects early breast development may be encouraged by a protein called leptin. "We know that fat cells produce leptin," he says. "And leptin is necessary for the progression of puberty." Another clue, according to Duke's Freemark, is that overweight girls have more insulin circulating in their blood. Says Freemark: "Those higher levels of insulin appear to stimulate the production of sex hormones from the ovary and the adrenal gland."

While the consensus favors a fat connection, other explanations haven't been ruled out. One is chemical pollution in the food chain—specifically, DDE, a breakdown product of the pesticide DDT, and PCBs, once used as flame retardants in electrical equipment. Both chemicals are plausible suspects because they mimic hormones that play a key role in the development of the reproductive system. Beyond that, says Dr. Walter Rogan, an epidemiologist at the National Institute of Environmental Health Sciences in Research Triangle Park, N.C., both chemicals are ubiquitous in the environment,

PRECOCIOUS Angelica Andrews, 13, isn't allowed to go out like this. She says boys follow her around "like dogs"



LAUREN GREENFIELD FOR TIME

FROM LEFT: GEORGE MATTEI—ENVISION; STEVEN NEEDHAM—ENVISION; ANNA PALMA—CORBIS; AP

ADVICE FOR PARENTS

What to Tell Your Daughter

The anxiety begins when the girls are about eight years old. "Did you notice so-and-so is developing?" one mom whispers to another as they scan their daughters' classmates for signs of breast buds—and reassurance that their own girls are perfectly normal. Maybe it's time for Judy Blume to write a sequel to her 1970 classic about training bras and first periods. She could call it *Are You There, God? It's Me, Margaret's Mother*.

If you're concerned about the hormonal changes your daughter is going through, you should know that you're in good company. If you're truly alarmed, you should consult your child's pediatrician, but the fact is, most early bloomers are perfectly healthy. Instead of medical attention, they need plenty of age-appropriate information and loving support. Happily, the trend toward earlier puberty has spawned a wealth of

resources for 8-to-12-year-old girls and their parents. And because girls this age still tend to listen to their parents, you're just the person to prepare your daughter for what lies ahead.

But not too far ahead. "You don't want to overwhelm girls," says Mavis Jukes, author of *Growing Up: It's a Girl Thing*. While blossoming third-graders need frank talk about how to handle unwelcome sexual attention, she says, they don't need explicit information on birth control and STDs or windy speeches about sperm and Fallopian tubes. So instead of preparing the Big Talk, it's best to start a series of casual conversations about your daughter's more immediate concerns, which may surprise you. According to Lynda Madaras, co-author of *My Body, My Self for Girls* and a puberty educator for 25 years, your daughter, like you, wonders whether she's normal. But while you're already

getting set to resent her future boyfriends, she just wants to know why her right nipple is inverted.

Discussing such things isn't easy, but, as Madaras points out, "embarrassment doesn't last forever." Indeed it doesn't. One Minnesota grandmother could barely say the word bra when her daughter was growing up in the '60s. Yet when her 12-year-old granddaughter recently saw "the period video" in school, the grandmother mustered enough sangfroid to admire the sanitary supplies little Katie brought home.

Today's books about puberty, which are leavened with humor (see the bathing-suit story in *It's a Girl Thing*), can help parents get started. Screen them first, share them with your daughter, then get in the car and start driving. That way, you won't have to look at each other when it's time to talk about pubic hair.

According to Jessica Gillooly, author of *Before She Gets Her Period*, young girls want their mothers to be their

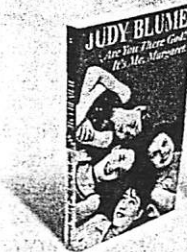
main source of information about puberty. They appreciate mothers' stories about their own experiences, and they need to hear the same information again and again. But parents should lose the line about "now you're a woman." A 10-year-old who's wearing a bra and a maxi pad needs to know just the opposite: she's still a child.

For many girls, physical activity—dancing, playing sports, even playing a musical instrument—is a way of gaining some control over their changing bodies. Says Judy Woodburn of *American Girl* magazine: "What we hope we can do for girls is emphasize not what their bodies look like but what they can do."

As for all those girls who are now old enough to be Margaret's mother, Blume says she didn't give the poor woman much thought when she wrote the book. Thankfully for that generation of girls—and now their daughters—Blume's main concern was Margaret. —By Eugenie Allen



The Care & Keeping of You
By Valerie Schaefer



Are You There God? It's Me, Margaret
By Judy Blume



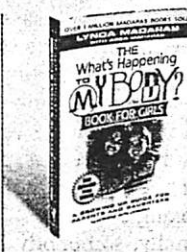
My Body, My Self for Girls
By Lynda Madaras and Area Madaras



Before She Gets Her Period
By Jessica B. Gillooly



The Period Book
By Karen Gravelle and Jennifer Gravelle



What's Happening to My Body? Book for Girls
By Lynda Madaras with Area Madaras

and they persist in the body for years after exposure.

For that reason, he chose PCBs and DDE for one of the very few large, long-term studies of chemical exposure and puberty in humans. Rogan and his colleagues began with some 600 pregnant women, measuring concentrations of the chemicals in their bodies. When their babies were born, the researchers then measured levels in the mothers' breast milk. Finally, the team monitored the children as they grew and entered puberty.

The most prominent effect, reported last spring in the *Journal of Pediatrics*, was that boys exposed to DDE and girls exposed to PCBs were heavier than their unexposed peers at age 14. The study also noted an intriguing fact: girls with high prenatal PCB exposure tended to hit the first stages of puberty a bit earlier than others. Rogan stresses that the numbers were too low to be statistically significant. "If there is an effect of environmental chemicals on puberty," he says, "it's pretty small, because we studied these kids in detail over a long pe-

riod of time, and we didn't see it." But, Rogan adds, "I can't rule it out."

Could other substances besides PCBs and DDE influence sexual development? Perhaps, Rogan says. But few compounds are as persistent and pervasive. Hormones given to livestock, for instance—another frequently invoked possibility—break down very quickly in the body. "I have not studied the effects of hormones in beef or dairy cattle," Rogan says. "It's not something I'm running out to study either."

What merits another look, some re-

searchers believe, is a suite of chemicals used to make plastics. One is Bisphenol A, or BPA. Like DDE and PCBs, it is a chemical cousin of estrogen's, and it has been shown to affect the reproductive systems of lab mice. Another category of plastics ingredients, phthalates, may have played a role in a rash of cases of very early puberty in Puerto Rico back in the 1980s, with girls as young as 2 growing breasts and pubic hair. And while no cause has yet been determined, a study published last month suggests that a possible culprit could be phthalates, which are used, among other things, to make plastics flexible. It's by no means an ironclad case, however, and the plastics industry doubts that there's any link. But, says Rogan, "what went on in Puerto Rico is a good question and one that needs more study."

Then there are those who believe the sexualized messages bombarding kids from all sides could be triggering changes in the brain that are jump-starting development. Drew Pinsky, a physician and co-host of MTV's recently canceled *Loveline* advice program, is a proponent of this notion. "MTV," he asserts, "is absolutely one of the factors in early puberty." But even though the idea sounds nutty, says Herman-Giddens, "it would not be scientific to dismiss it. If someone cuts a nice juicy grapefruit in front of you, you salivate. Seeing things can affect us physiologically."

Whatever the cause—and it may eventually turn out to be a mix of some of or all these factors—doctors say early development has become too widespread to be treated as a medical aberration. In the past, girls who developed breasts before age 8 were often given hormone therapy to slow things down. But in a report being prepared for the Pediatric Endocrine Society, Kaplowitz and co-author Dr. Sharon Oberfield of Columbia University argue that most girls between 6 and 8 who develop breasts or pubic hair should be reclassified as normal and left untreated. "Three-, four- and five-year-old girls should still be managed aggressively," he says, "but there are far fewer of these."

That doesn't mean that breasts on seven-year-olds can simply be ignored. Mentally and emotionally, these kids are no different from their undeveloped peers. "They're not dyeing their hair purple and

talking on the phone all the time," says Dr. Francine Kaufman, head of pediatric endocrinology at Childrens Hospital Los Angeles. "They're still 7."

But they don't look it, which can lead to all sorts of problems. For one thing, it makes these girls very obviously different from their peers—a position that can be deeply embarrassing for early and late developers alike. More ominously, says Susan Millstein, a professor of pediatrics at the University of California, San Francisco, "people think they're older, and the kinds of pressures put on them are more than they can handle." Marissa Carter, Sharon's mother, puts it more bluntly. "Girls who look more mature for their age

the schools, peer pressure and sexually explicit media are all conspiring to foreshorten childhood, with consequences that are still not well understood. "One of the big shocks during the whole Clinton debacle," says William Damon, director of Stanford's Center on Adolescence, "was that people were trying to filter out phrases like 'oral sex,' when in fact there were no eight-year-olds who didn't already know what that was." One result of these influences is that girls are wearing highly sexualized, adult clothing in middle school and below—even when they don't have adult bodies.

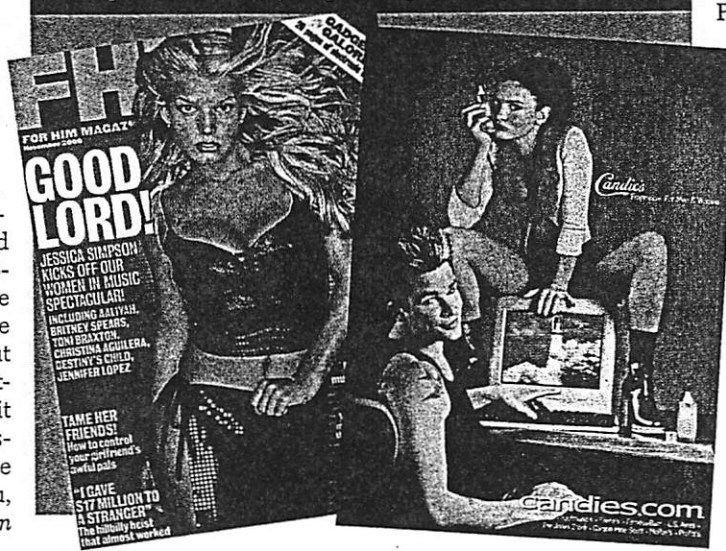
Yet this acceleration of growing up comes precisely at a time when life should be less about Eminem and more about M&M's. Between 8 and 12, explains psychologist Mary Pipher, author of *Reviving Ophelia*, a best-selling book on female adolescence, girls are in the so-called latency period, when they turn their backs on boys and bond with their peers—other girls. "Theoretically, it's a time when they're really gathering a lot of strength—they're doing well in sports, they're investigating the world, they're confident learners, and they're confident socially. They're marshaling their forces to be able to go into puberty."

Cultural pressure alone tends to short-circuit the latency period, when a child usually develops a sense of who she is and where she fits in the world. When a girl's body develops early, she is more likely to hook up with a boy—and leave her group of girl friends—before the developmental work of the latency period is done. "That," says Pipher, "has all sorts of harmful social, academic and psychological consequences."

Moreover, says MTV's Pinsky, early development feeds into what's already one of the toughest aspects of being a young person in the U.S. today. "Kids don't feel good about themselves," he says. "There's a pandemic of that. Society says, 'Here's how you feel good: get lots of money, look like Britney Spears, have sex, do drugs, do extreme sports.' And it works—in the moment." Eventually, though, the high wears off, and, he says, kids' self-esteem is lower than ever.

So if worried parents shouldn't medicate their prematurely pubescent daughter

MEDIA MANIPULATION Seductive images like these have already sexualized kids; early development just makes it worse



are like honey," she says. "They attract older boys."

For Chicago friends Angelica Andrews, 13, and Emily Jacobson Ranalli, 12, that kind of attention is such a source of pride that the girls are willing to use their real names. Says Angelica: "The boys tease me. They ask me, 'Have you had plastic surgery?' My friends get kind of jealous." Emily, giggling, says, "I've been mistaken for 17." But even they see a downside to looking a half-decade older than they really are. "Life gets harder and harder when you're developed," admits Angelica. "Boys walk up and hit your butt. They won't stay away. They're like dogs."

The physical dangers of sexual harassment and sexually transmitted diseases—and, for those who start menstruating early as well, pregnancy—are only the most obvious fallout of premature development. Academic pressure, drugs and alcohol in

ters, what can they do? "If I had a daughter who had a period at 9," says Pipher, "I'd say, 'This does not mean you're a woman; it means you're a nine-year-old having a period, and we are going to proceed accordingly.'" That means clothing, books and music appropriate to a girl's chronological age, not her physical age. It also means having her hang out with her family, where peer pressure to act sophisticated isn't a problem. "One of the best things for a nine-year-old," says Pipher, "is having her spend a lot of time with grandparents, cousins and so on—people who value her for something besides how sexy and popular she is."

Most important, agree virtually all the experts, is that parents keep communicating with their daughters (see box). "It

doesn't matter what you tell them," argues Pinsky. "Just get the dialogue going, because when they hit puberty, they'll have questions and they will ask you if they feel comfortable." Nothing is more important than that connection, he says. "It's the child that can't trust adults who is going to do whatever their biological impulses or their peers or the ambient culture suggests to them."

It was family support that got Sharon Carter safely through her bout with early puberty. "I am really very excitable," says her mom, "and I had to get all that under control and make her feel that what she was going through was normal." The result, says Sharon: "I don't remember much about all that. I couldn't go swimming

when I had my period. And I still can't, and I love to swim. That's the only difference it made with me."

Angelica Andrews also has her parents watching out for her. Recently, the teenager experienced her first French kiss—but her family knew all about it, and the boy was immediately instructed not to call again until she was 16, or maybe 18. It's unfortunate that such vigilance has become necessary for the families of many 12- and 13-year-olds, whereas a generation ago, most parents could relax until a girl was 16 or 17. But as Angelica puts it, "Welcome to the 21st century."

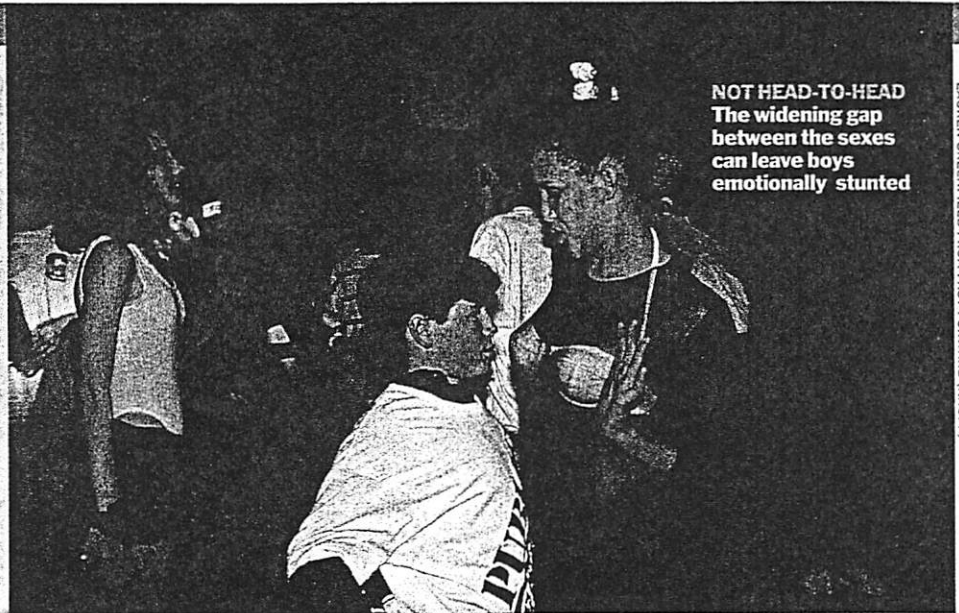
—Reported by Dan Cray/
Los Angeles, Deborah Fowler/Houston, Julie Grace/Chicago, Alison Jones/Durham and Dick Thompson/Washington

GUY TALK

What About The Boys?

How does your typical nine-year-old boy react to the sight of a female classmate who towers over him and is sprouting breasts? Many boys may barely notice, so immersed are they in soccer, video games and other pleasures of the so-called latency period—the grade-school years when youngsters pay little heed to the opposite sex. "Boys of that age tend to regard girls almost like members of a different species," says Dr. Glenn Elliott, director of child and adolescent psychiatry at the University of California, San Francisco. "They really don't have much concept of sex."

But in the absence of studies about how boys may respond, there is plenty of informed speculation—gleaned partly from clinical impressions—that at least some boys may be startled and perhaps even freaked out by the sexual changes that their precocious female classmates have begun to evince. "Remember junior high," says Mary Pipher, author of *Reviving Ophelia*, "where the girls were all five inches taller than the boys and starting to have some sexual develop-



NOT HEAD-TO-HEAD
The widening gap between the sexes can leave boys emotionally stunted

LAUREN GREENFIELD FROM EAST FORWARD (KNOPT)

ment, while the boys had squeaky voices and looked totally young? That difference is further underscored if girls start having puberty at 9."

Some prepubescent boys may taunt and tease girls in a form of youthful sexual harassment that covers up any discomfort they feel. "It's kind of stimulating and disorienting to have these girls be so changed," says psychologist Michael Thompson, the author of *Speaking of Boys* and co-author of *Raising Cain*. "The boys may often react in clumsy, immature and basically clueless ways."

Some boys may be experiencing early puberty themselves. While the evidence

remains sketchy and controversial, researchers have found markers of approaching sexual maturity, such as enlargement of testicles, in boys younger than 10. But these developments are not as visible as a girl's broadening hips and budding breasts. And until boys experience their growth spurt, which typically begins at about age 13, many will have to look up to girls their age who are larger and stronger than they are.

Boys may continue to taunt girls in middle school, when the young males' raging hormones really start to kick in. By then, many boys may despair of ever catching up with their more physically and

socially advanced female peers. And their insecurity may be heightened by the fact that some girls have already begun to look forward to high school and the chance to meet "real boys"—as opposed to those gawky dweebs in the next seats.

Experts say adults can help allay boyish fears by explaining that girls naturally mature faster. "Boys have to be made to feel O.K. about their development and their bodies," Thompson says. "They shouldn't be shamed for being immature." If people come to believe that boys will never grow up, he adds, "that prophecy will be fulfilled." —By John Greenwald

