Overweight children would not be the first thing a visitor to Grafton, West Virginia, would think of when seeing the small farms that cling to steep hillsides and cultivate the bottomland along the Tygart River as one drives into town. Like most of the state, the landscape around this village of 5,200, the county seat of Taylor County, just 20 miles south of Morgantown, nods to pastoral enterprise, suggesting a place where citizens might be eating healthy foods, hiking, working farms and mines—staying fit.

Unfortunately, this isn’t so.

“When the kids finish school, they take the bus home,” says Rod Auvil, a physical education (PE) teacher at Taylor County Middle School in Grafton. “They let themselves in the house because both their parents work. They play video games. They watch TV. They eat. It’s a very sedentary lifestyle.”

And it shows. In a survey done between 1999 and 2005 by the Institute of Medicine, a branch of the National Academy of Science, 46 percent of West Virginia’s 5th graders were found to be either obese or overweight. According to West Virginia’s Bureau of Public Health, more than a third of the state’s residents are obese and many more are overweight. The problem worries organizations like Mountain State Blue Cross, which will have to pay for the diabetes and heart problems associated with obesity. And it bothers the state government, which has decreed a doubling of PE class hours for middle-school students, who currently get one exercise period a day for nine weeks out of an entire school year.

Is that enough? Will it make a difference?

Though weight, and that includes overweight, is the result of a complex set of interactions between an individual’s genes, behavior, and the environment, at its simplest, as a recent
National Institutes of Health report states, our size is the result of “a balance between energy intake and energy expenditures.” Eating and exercise. Here we discuss the second of these two fundamentals: energy expenditures and what our schools are doing to affect the equation. (For an analysis of schools’ role in energy intake, see “The School Lunch Lobby” and “What’s for Lunch?” features, Summer 2005.)

America the Fat

West Virginia is not alone in its struggles with weight (see Figure 1)—or its decision to ratchet up PE requirements as a means of dealing with the problem. The United Health Foundation, a nonprofit organization that publishes an annual “health rankings” of states, says that the Mountain State is 48th in the nation in “prevalence of obesity” in the population (only Mississippi and Alabama are fatter), but its 27.7 percent obese population is only five points higher than the national average, which is 22.8 percent obese.

Across America, kids are not just chubby, but alarmingly fat. The American Academy of Pediatrics reports that childhood obesity has doubled in the last two decades. About one in six children is seriously overweight. And, as in West Virginia, legislatures have taken notice, and have given schools the job of solving the problem (see “Not Your Father’s PE,” research, page 60). Last year 18 states passed new legislation on physical activity in schools. In both Maryland and Virginia, bills were introduced requiring schools to do body mass index screenings.

Will schools be able to handle their new assignment of downsizing the American child?

“A waste of time,” says one physical education teacher I spoke to, commenting on PE practices. According to the National Conference of State Legislatures (NCSL), the current state of affairs could be the result of some bad habits in recent years, as daily participation in high-school physical education classes dropped from 42 percent in 1991 to 28 percent in 2003. Currently, only one state, Illinois, requires daily PE for grades K-12. And this lackluster—lazy?—attitude about physical exercise persists despite the evidence that, as the NCSL reports, “Thirty minutes of active physical activity during the school day can help control weight, build healthy bones, muscles, and joints, reduce symptoms of anxiety and depression, enhance feelings of well-being, and may even improve academic performance.”

Rod Auvil’s school is one of several I visited to assess the likelihood that schools can help stem the obesity tide. Besides rural West Virginia, I observed PE in working-class Chesapeake, Maryland, and at Yorktown High in suburban Arlington, Virginia, which boasts graduates such as the late senator Paul Wellstone, astronaut David Brown, and television journalist Katie Couric. I also visited a school in Fairfax, Virginia, whose demographic diversity makes it look like America itself. I saw a mix of rural and metropolitan, blue-collar and white-collar, rich and poor. I saw good PE and bad PE. And though we all know that rising childhood obesity stems from powerful social and cultural factors over which the schools have little or no control, I can also conclude, from what I observed at these schools, that PE classes as currently conducted are not particularly efficient burners of calories or builders of muscle.

All right! Everyone! Listen up! On your feet! Five laps! Or not …

Taylor Middle School

Let’s Dance

On a recent morning in the gym at Taylor Middle School in Grafton, West Virginia, where more than half the kids qualify for free or reduced-price lunches, we see what can happen when technology meets childhood obesity. As teacher Auvil reviews his lesson plan for 5th-grade PE, he notes how it differs from the plans he devised when he started teaching 23 years ago. Then, dodgeball ruled. Now, computers do.

Auvil engages in something that might be called co-opting the enemy. Before his students arrive in the gym, he retrieves

The Plumpening (Figure 1)

Since the early 1960s, the percentage of overweight children ages 6 to 11 has almost quadrupled.

Note: According to the Centers for Disease Control (CDC), an “overweight” individual has a body mass index (BMI) at or above the 95th percentile of the CDC’s sex-specific BMI growth chart. The point estimates on the graph are the result of surveys administered in five time periods: 1963-65, 1971-74, 1976-80, 1988-94, and 1999-2000.

Source: Centers for Disease Control and Prevention, National Center for Health Statistics, “Health, United States, 2005”
two specimens of exercise enemy number one, the television set, from an equipment storage room. The TVs are mounted on rolling carts, and he trundles them into position on two sides of the gym. He inserts examples of “enemy number two,” the video game, into devices underneath the television sets.

A school bell rings.

Children start to trickle in, heading for the locker room to change into gym clothes. (Unlike many public schools, Taylor does not provide exercise uniforms.) Several children notice the TVs. “Are we going to dance today?” a girl asks. Auvil smiles and nods. “Yeah!” the girl exclaims.

A bespectacled kid in a T-shirt bearing the likeness of TV wrestler Rob Van Dam (“Mr. Monday Night”) walks up to Auvil and asks to be excused from class. He rolls up his shirt and displays a red welt on a tummy already drooping to Auvil and does not provide exercise uniforms.) Several children change into gym clothes. (Unlike many public schools, Taylor—back to Basics—Sort of

The title of the basic physical education class at Chesapeake High School in Pasadena, Maryland, at least acknowledges the importance of what happens after the course is over. It’s called “Fitness for Life,” and PE instructor Walter R. “Skip” Lee is dedicated to that goal. But he often feels a bit like a preacher trying to get his flock into Sunday school on a day when the circus is in town.

At 7:50 on a recent morning, the roughly 25 students in his class are filing into the gym, wearing uniform blue shorts and gray T-shirts. High-school students in Anne Arundel County must take more PE than the state of Maryland requires. Maryland, which ranks 22nd on the nation’s obesity scale with 21.9 percent of its population severely overweight, requires a half-credit, or roughly a quarter of a daily class, of its population severely overweight, requires a half-credit, or roughly a quarter of a daily class, of its high-school students. Anne Arundel County requires a full semester of PE, which is about 90 classes’ worth in three months. Most Chesapeake students take “Fitness for Life” in 9th grade.

Lee begins the class by directing his students to take a five-minute warm-up jog around the perimeter of the gym. Fitness for Life is a standardized PE curriculum used by all the high schools in the county. It is a combination of calisthenics and...
Lee’s class is mixed by race, by gender, by weight—and by enthusiasm. Some kids look hulking. Some are still waiting for their growth spurts and don’t top 90 pounds. Some bound around the gym at a good pace, some jog, some walk. After two or three laps, the cluster of walkers gets larger.

After five minutes, Lee blows a whistle and leads the class through four minutes of stretching. He would normally have moved to calisthenics, but this was a day for setting a benchmark for each student in the curl-up, a version of the abdominal crunch, which is a variation on the sit-up.

Lee then leads the students across a hall into the school’s wrestling room. The teacher explains that he is going to turn on a boom box that will emit a recorded “up-down” cadence a total of 81 times, the number of curl-ups he wants his students to do. The kids form a circle on the floor and begin raising their upper bodies off the floor, touching their lower legs with their hands, lying prone again, then repeating the movement, all to the beat from the boom box, for two and a half minutes. Lee, carrying a clipboard, asks each student how many curl-ups he or she performed. More than half the class reported doing all 81.

“Fantastic, guys,” says Lee, an enthusiastic teacher who looks for opportunities to be encouraging. He leads the class back across the hall and puts them through 20 minutes of an indoor game called speed-ball, akin to soccer. The class divides into three teams and each team splits time between playing and watching.

It is early in the semester, and the curl-up benchmark is one of several Lee is establishing for skills ranging from the mile run to pull-ups. He expects he will see significant improvement in the students’ performances by the end of the semester. He usually does. But there are limits to what he can do, limits imposed primarily by the culture the kids re-enter when they leave class.

Lee introduces me to a slender, black-haired girl named Paige Gardener, who is 14. Last year, in middle school, she says, her beginning time for the mile run was 10:51. By the end of the semester it was down to 9:51. “I like doing physical things, improving,” she says. But when I ask her how often she runs on her own, she says, “Maybe once a month.” Paige works four days a week giving shampoos in a hair salon for $5.50 an hour. That cuts into the time she has for sports, and though she might like to try out for the soccer or track teams at Chesapeake, she doesn’t feel she can.

That’s part of what he is up against, Lee tells me after class is over. Pasadena, Maryland, is a suburb of modest houses and apartments about ten miles south of Baltimore. Not every family has the wherewithal to permit a child to spend her leisure time on exercise and sports. And many students opt for a part-time job to finance a car.

“Kids take the path of least resistance,” says Lee. “The parents in this community don’t, by and large, work out. They don’t walk anywhere. The kids tend to end up like that, too. When a kid turns 16, he gets a job so he can get a car.” And walk less often.

Lee sees two distinct categories of students at Chesapeake: the athletes—about a third of Chesapeake’s 1,940 students participate on a varsity or junior varsity team—and the nonathletes. Lee, who is 41, feels the varsity athletes are just as fit as, if not fitter than, the athletes of his own high-school days. He has coached the track team for the past seven years, and in that time his athletes have broken 13 school records. But he works them hard—two hours a day, five days a week.
But the nonathletes get much less daily exercise than their peers of two or three decades ago, and Lee sees the consequences in his classes. “Twenty years ago, to be considered fit, a 14-year-old boy was supposed to be able to do 11 pull-ups. Nowadays, I’d be happy to have one kid do that many.” These days, he starts his classes out doing push-ups with their knees on the ground, rather than the “military” push-ups (only hands and toes on the ground) that were de rigueur for boys a generation ago. He expects to have all the class members doing military push-ups by the end of the semester.

Skip Lee is not sanguine about the future. He thinks that standards of fitness are dropping and that the state should require at least two courses of PE. “Fit kids,” he says, “would do better in their academic classes.” It’s an argument for exercise as old as the ancient Greeks—or Thomas Jefferson, who in 1786, advised a future son-in-law, “If the body be feeble, the mind will not be strong—the sovereign invigorator of the body is exercise.”

### Yorktown High

**Is PE a time waster?**
The countervailing pressures against increasing the physical education requirements are strong and widespread, and in plain view at Yorktown High, in Arlington, Virginia, a school that prides itself on producing high achievers.

The student population at Yorktown is 69 percent white, 16 percent Hispanic, 9 percent Asian, and 7 percent African American, and only 17 percent of its students qualify for free or reduced-price lunches. Its diversity is evident as Rebecca Bonzano’s 10 a.m. PE class of freshmen and sophomores begins to assemble one recent morning. Not only is there an ethnic mix, there are also goths and preppers, nerds and jocks, fat kids and thin ones. By 10:07, they emerge from their locker rooms in blue-and-gray uniforms. Bonzano takes attendance. At 10:10, the class begins a few minutes of warm-up jogging, back and forth along a floor that has been set up with six volleyball nets. Some students walk, chatting with friends.

At 10:15, the students sit down on the floor. Bonzano reads the standings after two weeks of volleyball competition. Students at Yorktown take a semester of PE and a semester of health in their first year. In the second year, they get three quarters of PE and a quarter of health. Each PE course consists of three-week units on different sports. Though physical exercise, known previously as gymnasium, has been a common part of American schooling since the 19th century, recreational games like basketball, flag or touch football, soccer, and softball were not introduced into the PE curriculum until the 1930s. The idea now is that if students learn sports, they will have a pleasant way to exercise after class and after graduation.

Bonzano opens a bag of volleyballs, and at 10:16, the games begin. The teams are co-ed, each game lasts about five minutes, and the level of play is spotty. There are few rallies, few spikes, few sets, no digs. At any given moment, 1 student is attempting to play the ball and 11 stand and watch.

At 10:44, a bell rings and the last volleyball game ends. In seconds, the students are in their locker rooms. They had been on the gym floor for 34 minutes. None had broken a sweat. By 10:50, the students are dressed and back on the floor, waiting for the bell at 10:53 that dismisses them.

“That was one of my most challenging classes,” Bonzano says after the students have gone, meaning that these students aren’t enthusiastic about being in physical education. “In some of the other classes, you have kids cheering, getting into it. They play hard.”

Bonzano, in her 15th year of teaching, is unhappy with the role of PE at Yorktown. “In many respects it’s a waste of time,“ she says.”I would have four years of PE and I’d have harder standards. You’d have to run a mile under a certain time, you’d have to do a certain number of curl-ups, and so on. As it is, we’ve watered down the fitness standards, and they’re too easy. And the kids don’t even have to meet them! We just pass them and promote them.” She says that the old national fitness standards are not used anymore because they were too hard.

But Bonzano does not expect this situation to change, because it satisfies the desires of too many constituencies.

“We have parents who would like to cut PE further,” she says. “They’d like more time for Advanced Placement academic classes. They’re focused on their kids getting into the Ivy League, and they know those colleges don’t care about PE grades.”

Like their parents, she says, Yorktown students are focused on building a résumé that will look good to selective colleges. PE has no role in that.
Lanier Middle School

Picking Up the Pace

Perhaps the most a determined teacher can do in the current system is make students burn calories nearly all the time they’re in PE class.

That’s what Denise Moser does at Lanier Middle School in Fairfax, Virginia, a school with a mix of ethnicities and income levels that mirrors that of the general population. Moser, who is 31, came to PE teaching by a nontraditional route. A certified personal trainer, she got into teaching on a provisional license. When she looked at the way most physical education classes were run, she saw one thing she thought she could improve immediately: “There was too much downtime,” she says.

Moser has to adapt her personal training techniques to a class where she and another teacher handle as many as 80 students at a time. And on a recent Monday afternoon, that was what she and fellow teacher Meghan Doran do. The students come into class wearing gym shorts and T-shirts that read “Get Fit at Lanier” on the back. Moser has them walk and jog around the gym while she and Doran set up six rows of “stations.” At one station there are elastic bands. At another there are homemade low platforms, constructed of wood, for step drills. Other stations have only the walls of the gym or the first row of bleachers. But there is a station for every student. No one waits in line in Moser’s classes.

Within minutes, Moser and Doran have all 80 students at a station and exercise begins. For 40 seconds, one row of students might be required to do as many arm curls as possible with the elastic band. Then a whistle blows, and that group of students runs to the wooden platforms, where they do 40 seconds of step drills while another group takes its place with the bands. Some stations are simple calisthenics, push-ups, or squats with backs pressed to the gym wall.

Every seven minutes a round ends, and Doran and Moser demonstrate new drills to be performed at each station. The routine is familiar to the students, and with the exception of a brief water break, they are in motion from 2:15 to 2:46.

Boot Camp

But Moser is not done for the day. At 3 p.m., she greets about a dozen students for an afterschool activity called “Lanier Boot Camp.” Once a week, she and fellow teacher Pam Clingenpeel give anyone who cares to show up a 45-minute workout that is the equivalent of a fitness class at a commercial gym. On this Monday, the boot camp students lift weights. They run hurdles. They do abdominal crunches and push-ups while balancing on exercise balls. The workout demands a high fitness level from Moser and Clingenpeel. The students, a self-selected group, seem to thrive on the activity. They are sweating but happy when the class ends. “I like PE, but this is more fun,” says one student.

Denise Moser has founded a nonprofit organization, Functional Fitness for Kids, Inc., which she hopes will spread the free, afterschool boot-camp model to middle schools throughout the country. She believes that it’s in the middle-school years, when children are first deemed old enough to go home after school and look after themselves, that habits of being sedentary and overeating begin. She thinks her program can help 5th and 6th graders form better habits.

Moser’s example suggests that it is at least theoretically possible to give students the sort of calorie-burning, muscle-building workout that adults pay trainers to provide in commercial gyms. And Moser proves that it is possible to eliminate much of the downtime from the average PE class. But if school systems are to follow Lanier Middle School’s example, they will have to find teachers fit and enthusiastic enough to lead Moser’s sort of high-paced class, not to mention volunteers to run supplemental classes after school.

To make a real dent in childhood obesity, the schools will probably have to hold those intense classes and afterschool programs five days a week. If they don’t want to cut academic classes, they will have to add to the school day. They might have to treat fitness as seriously as the No Child Left Behind Act treats reading and math, requiring students to pass assessment tests and teachers to be “highly qualified.” Simply passing legislation mandating a little more of the same PE just isn’t going to do.

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