

of 1.2 ng/mL and higher. Nevertheless, de Denus and Spinler's concerns about concomitant amiodarone and digoxin use and the large number of other digoxin-drug interactions² the harm associated with higher SDCs, our previous findings of digoxin-associated harms in women,³ and newly reported evidence of a lack of quality of life benefit for digoxin,⁴ raise broader issues about the role of digoxin therapy in the treatment of patients with heart failure. If clinicians wish to use digoxin in patients with heart failure who are in sinus rhythm, based on our data³ it would seem advisable to monitor trough levels and keep them between 0.5 and 0.8 ng/mL.

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Health and Function of Patients With Untreated Idiopathic Scoliosis

To the Editor: Dr Weinstein and colleagues¹ found a wide range of long-term outcomes among a small, geographically localized cohort of adults with a childhood history of late-onset idiopathic scoliosis (LIS). I disagree, however, with their conclusion that there is "little physical impairment other than back pain and cosmetic concern." In addition to 4 deaths attributed to LIS, these individuals reported twice the incidence of chronic pain compared with control subjects, who were selected from very high-disability environments including hospital clinics.

Furthermore, the authors did not explore pulmonary disability. They did report, however, that a history of limited chest excursion was associated with reduced vital capacity, which in turn was correlated with recurrent pulmonary infections. They further reported that vital capacity remained reduced at the 30-year follow-up and that it was restricted to 2 cm or less in more than half of the cohort at the 50-year follow-up, suggesting substantial progressive loss of respiratory function.

Similarly, the authors claim that "Branthwaite found dyspnea solely due to the curvature to be extremely rare in patients with LIS." In fact, that study² found that among 40 adults with idiopathic scoliosis, 16 complained of dyspnea and nearly half of these were classified as LIS. Dyspnea is unreliable as an indicator of pulmonary compromise, however, because such patients often fail to recognize their own symptoms even when respiratory function is severely compromised.³ Branthwaite concluded that all patients with vital capacity below 50% "should be watched with particular care, so that disproportionate deterioration of lung function with age can be detected and treated early."²

Two millennia after Hippocrates observed that respiratory failure can occur in thoracic scoliosis but that some patients nevertheless achieve a normal lifespan, it remains impossible to predict the later outcomes of LIS. Under the circumstances, it is unfortunate that the authors did not discuss whether any of these patients were treated with an exercise program. An 8-day supervised exercise program can significantly reduce curvature rigidity,⁴ the defining characteristic of a structural spinal deformity and an important predictor of progression and pain.^{5,6} Any relationship—positive, negative, or neutral—that might exist between such treatments and the widely divergent outcomes of these patients would be of interest.

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1. Weinstein SL, Dolan LA, Spratt KF, Peterson KK, Spoonamore MJ, Ponseti IV. Health and function of patients with untreated idiopathic scoliosis: a 50-year natural history study. *JAMA*. 2003;289:559-567.

2. Branthwaite MA. Cardiorespiratory consequences of unfused idiopathic scoliosis patients. *Br J Dis Chest*. 1986;80:360-369.

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4. Dickson RA, Leatherman KD. Cotrel traction, exercises, casting in the treatment of idiopathic scoliosis: a pilot study and prospective randomized controlled clinical trial. *Acta Orthop Scand*. 1978;49:46-48.

5. Lonstein JE, Winter RB. Adolescent idiopathic scoliosis: nonoperative treatment. *Orthop Clin North Am*. 1988;19:239-245.

6. Deviren V, Berven S, Kleinstueck F, Antinnes J, Smith JA, Hu SS. Predictors of flexibility and pain patterns in thoracolumbar and lumbar idiopathic scoliosis. *Spine*. 2002;27:2346-2349.

In Reply: Dr Hawes characterizes our sample as geographically localized. Patients were initially seen at the same medical center but had dispersed to 22 US states and Canada by the 50-year follow-up. Concerning the representativeness of our control group, we sought volunteers based on age and sex alone from 2 dermatology clinics, a walk-in senior center, and the independent living unit of a retirement home. These are appropriate venues considering the age of our sample.

Concerning pulmonary function, Branthwaite is very clear: "Patients developing scoliosis at or after the age of 11 have a good prognosis, and cardiorespiratory disability is exceptional unless cardiac or pulmonary disease are present independently."¹ The work by Fraser and Pare, which Hawes cites, also states that "deformity of sufficient degree to cause symptoms and signs of cardiac or pulmonary disease is rare."²

We previously reported results of pulmonary function tests in the 1981 forty-year follow-up.³ Those results supported the widely recognized relationship between decreased pulmonary function and severe thoracic curvatures. Because of the strength of that relationship and the lack of controversy surrounding it, we saw little reason to repeat these evaluations. We found no current significant difference in the frequency of shortness of breath between the patient and the control group (22% vs 15%, respectively). Additionally, using the same questionnaire and the same patients, the prevalence of shortness of breath has ranged from 19% at 20 years to 28% at 30 years to 24% at 50 years. This hardly indicates "substantial progressive loss of respiratory function."

The implication that these outcomes were improved due to an exercise program is unfounded. Dickson and Leatherman⁴ reported an increase in flexibility due to exercise of 4°, clearly within measurement error. Furthermore, there is no evidence that exercise results in sustained flexibility and benefits over a 50-year period.

We do not mean to imply that LIS does not have physical or psychological consequences, or that this condition does not warrant treatment. We do believe that these outcomes should be discussed with patients and families when making treatment decisions.

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1. Branthwaite MA. Cardiorespiratory consequences of unfused idiopathic scoliosis patients. *Br J Dis Chest*. 1986;80:360-369.
2. Fraser RS, Colman N, Muller NL, Pare PD. Disease of the diaphragm and chest wall. In: *Fraser and Pare's Diagnosis of Diseases of the Chest*. Philadelphia, Pa: WB Saunders Co; 1999:3020.
3. Weinstein SL, Zavala DC, Ponseti IV. Idiopathic scoliosis: long-term follow-up and prognosis in untreated patients. *J Bone Joint Surg Am*. 1981;63A(5):702-172.
4. Dickson RA, Leatherman KD. Cotrel traction, exercises, casting in the treatment of idiopathic scoliosis: a pilot study and prospective randomized controlled trial. *Acta Orthop Scand*. 1979;49:46-48.

Approaches to Reducing Consumption of Alcohol by Youth

To the Editor: In their article about alcohol consumption and expenditures for underage drinking, Ms Foster and colleagues¹ recommended more campaigns against underage drinking, tougher penalties for violating the drinking age, and the like. Many such interventions have already been tried, including billions of dollars spent in the war on "underage drinking" and the enactment of many statutes. The drinking age in the United States is the highest in the world. We have put holograms on driver's licenses, required registration of beer kegs, and even paid police officers to work undercover as convenience-store clerks. Nothing has worked. It is about time to recognize that punitive alcohol policies are a costly failure.

While it is true that rates of alcohol abuse have declined during the past 20 years, that has been observed in all age groups and in other countries.^{2,3} There is no evidence, however, that all of our punitive efforts toward young people have had any net ben-

eficial effect. In fact, those efforts may have been counterproductive, leading to an increase in alcohol problems among college students.⁴

I believe that we must reassess our philosophy toward alcohol and young people. Other countries teach young people how to handle alcohol responsibly. Countries and cultures that teach moderation rather than "abstinence only" are far more successful in preventing irresponsible drinking by young people,⁵ a phenomenon easily demonstrated by comparing US college students on spring break with the local young people in international vacation spots.

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1. Foster SE, Vaughan RD, Foster WH, Califano JA. Alcohol consumption and expenditures for underage drinking and adult excessive drinking. *JAMA*. 2003;289:989-995.
2. Sweedler BM, ed. *The Nature of and Reasons for the Worldwide Decline in Drinking & Driving: Proceedings of a Workshop of the TRB Committee on Alcohol, Other Drugs and Transportation*. Washington, DC: Transportation Research Board Circular 422.
3. Simpson HM, Mayhew DR, Beirness DJ. The decline of drinking-driving fatalities in Canada: a decade of progress comes to an end? In: Kloeden CN, McLean AJ, eds. *Alcohol, Drugs and Traffic Safety—T'95*. Vol 1. Adelaide, Australia: NHMRC Road Accident Research Unit, University of Adelaide; 1995:508-512.
4. Engs RC, Hanson DJ. Reduction of consumption theory: a test using the drinking patterns and problems of collegians in the United States, 1983-1994. *Coll Students J*. 1999;33:333-345.
5. Hanson DJ. *Preventing Alcohol Abuse: Alcohol, Culture and Control*. Westport, Conn: Praeger; 1995.

In Reply: Mr Walcoff's conclusion that US alcohol policies have not worked and his suggestion that other countries have a better approach we should adopt reflects neither the facts nor public opinion.

Several policies have been shown to be effective in reducing the prevalence and consequences of underage drinking. For example, higher taxes on alcoholic beverages reduce teen drinking,¹ as do interventions such as compliance checks.² The National Highway Transportation and Safety Administration estimates that increasing the US legal drinking age to 21 years has reduced traffic fatalities involving drivers aged 18 to 20 years by 13% and has saved an estimated 20970 lives since 1975.³

The fact is that there is no national US alcohol policy. Underage drinking policies and the manner in which they have been implemented and enforced vary substantially among states and communities. Research shows that reducing underage drinking and its costs requires addressing all the factors related to both prevention and abuse, including genetics, family support, peer influence, schools and communities, access to alcohol, media messages glorifying its use, and the economic interests of the alcohol industry. The answer is not to give up or redefine the problem, but to use what we know works in a comprehensive way. Such an approach including better enforcement of underage drinking laws is no more punitive than, for example, seat belt laws; they both will save lives.

Contrary to Walcoff's statement, a recent report by the US Department of Justice found that alcohol use and abuse are less prevalent among 10th grade students in the United States than in almost all European countries.⁴ There is little evidence that