SCIENCE NEWS®

The Weekly Newsmagazine of Science

A Science Service Publication
Volume 125, No. 7, February 18, 1984

This Week

Research Notes

Articles

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ISSN 0036-8423

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Letters

Fractal hearts

As pointed out in "Ants in Labyrinths" (SN: 1/21/84, p. 42), the increasing popularity of fractal geometry and percolation theory stems from the vast diversity of physical problems that can be viewed as variations on a similar theme. I have been pleasantly surprised to find rather straightforward applicability of some aspects of percolation theory in my study of ventricular fibrillation, the lethal cardiac rhythm abnormality that claims over 500,000 lives each year in this country alone.

Normally, organized and highly reproducible electrical activation of the cardiac structures leads to organized and properly timed mechanical contraction, thus allowing the heart to carry out its function as a pumping chamber for blood. In ventricular fibrillation, the pattern of electrical activation is chaotic, resulting in disorganized and ineffectual contractions, circulatory collapse, and death. Of major interest is the transition between the normal state and the chaotic one. Traditional attempts to describe the determinants of this transition have been unsuccessful. Percolation theory offers new insight into this very important problem.

By viewing the conduction of electrical activation throughout the cardiac structures as a percolation problem (similar to fluid seeping through a densely packed powder) it has been possible to predict the determinants of the transition from normal conduction to ventricular fibrillation. These predictions have lent quantitative support to a host of empirical clinical observations.

Further study promises theoretical predictions regarding efficacy of antiarrhythmic drug therapy, and perhaps even an aid in the identification of those individuals more susceptible to spontaneous ventricular fibrillation.

The areas of potentially successful application of fractal geometry and percolation theory are so numerous and ramified as to suggest yet another "fractal."

Joseph M. Smith
Harvard-MIT Division of Health Sciences and Technology
Cambridge, Mass.

Panic

In reference to your article "Low blood sugar no cause for panic," (SN: 1/28/84, p. 58), if you chemically induce a panic attack, then watch for corresponding drops in blood sugar levels, all you can conclude is that panic attacks may or may not cause hypoglycemia. I do not see how Dr. Gorman can conclude [that] low blood sugar itself is not the source of panic. It seems to me one would have to lower the blood sugar level, and see if you could trigger a panic attack to test that hypothesis.

Susan A. Kriz
Glen Ellyn, Ill.

Ed.'s note: The article should have said that Gorman and colleagues concluded that hypoglycemia is not the source of all *panic attacks. They note in their journal report that they did not prove that hypoglycemia* never *causes panic attacks.*

Correction: Both nutrition notes (SN: 2/4/84, p. 72) come from the November-December JOURNAL OF FOOD SCIENCE, *not January, as stated.*