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Bohr D F. Electrolytes and smooth muscle contraction.

Pharmacol. Rev. 16:85-111, 1964.

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The net effect on smooth muscle contraction of a shift in electrolyte concentration depends on the relative magnitude and direction of the influence of this change on each component of the contractile process: excitation, coupling, chemomechanical transducing, and energy metabolism. [The *SCI*® indicates that this paper has been cited in over 260 publications.]

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I wrote this review article after having written my first paper in the area only six years earlier. I was asked to write it because it was a subject that was much in need of a review; I accepted because I didn't know any better. The subject, electrolytes and smooth muscle contraction, was one that any informed, thinking realist would have recognized as being impossible to review. It is just too

broad. Not only are there laboratory shelves full of electrolytes and living bodies full of diverse types of smooth muscle, but the contraction of each smooth muscle cell is the result of the action of at least four different events, each of which is influenced in its own way by each of the electrolytes. Writing the review contributed importantly to my aging process, but the breadth of the subject is also the reason that so many subsequent investigators with diverse interests cited the review.

I should like to take this opportunity to restate a pet issue that I introduced in this review:

In the hall of fame for investigators who have contributed recipes for solutions containing the electrolyte requirements of specific tissues for specific functions, Drs. Ringer, Tyrode, Henseleit, Krebs, and Modified have places. The last named has been the most prolific. It is impossible for the ordinary reader to remember the concentrations or even the ingredients in each recipe. This reviewer enters a plea to each investigator to define the composition of the physiological solution he uses in mmole/liter; any such solution might be referred to as a physiological salt solution (PSS). (p. 89-90)

I didn't mention that a colleague of mine wanted to have it called "physiological isotonic salt solution."

My subsequent studies on electrolytes and smooth muscle have focused on the abnormalities of vascular smooth muscle in hypertension,¹⁻³ and have been recognized in my receipt of the Ciba Award for Research in Hypertension in 1984.

1. Moreland R S, Lamb F S, Webb R C & Bohr D F. Functional evidence for increased sodium permeability in aortas from DOCA hypertensive rats. *Hypertension* 6(Suppl. 1):I-88-I-94, 1984.
2. Bohr D F & Webb R C. Vascular smooth muscle function and its changes in hypertension. *Amer. J. Med.* 77:3-16, 1984.
3. Bohr D F. What makes the pressure go up? A hypothesis. *Hypertension* 3(Suppl. II):II-160-II-165, 1981.