

EXERCISE AND SPORT SCIENCES REVIEWS



ESSR Journal Club

Covered Article: “Intravascular ATP and the regulation of blood flow and oxygen delivery in humans” by Anne R. Crecelius, Brett S. Kirby, Frank A. Dinunno.
Exercise and Sport Sciences Reviews. 43(1), January 2015.

1. Describe how blood flow changes when oxygen delivery is reduced or when the demand for oxygen is increased.
2. Which criteria are used to identify potential vasoactive molecules that may be important for the regulation of vascular tone during physiological stress?
3. What experimental conditions have been shown to increase venous plasma [ATP]?
4. What evidence is presented to suggest that sympathetic nerves do not likely contribute to observed physiological increases in plasma [ATP]?
5. Which of the proposed stimuli for ATP release is most important? Why?
6. Explain what is meant by “functional sympatholysis.” Is ATP sympatholytic?
7. Through which pathways does ATP signal vasodilation?
8. Describe the influence of aging and disease on: a) the function of ATP in the vasculature; and b) the release of ATP under physiological conditions.
1. Evaluate the proposed role for ATP in the impaired vascular regulation of persons who are at increased risk for cardiovascular disease. What are the strengths and weaknesses of the proposed model?