

Smoking tobacco is bad for your circulatory health. In an attempt to maintain the blood's capacity to deliver oxygen, the body increases its red blood cell production, and this increases the viscosity of the blood. In addition, nicotine from tobacco causes arteries to constrict. For a smoker, blood viscosity increases by $\sim 10\%$, and the diameter of the pulmonary artery decreases by 10% . Assuming the pressure difference has not changed, how would the blood flow be affected by the increase in viscosity of the blood and the decrease in the diameter of the artery?

- A. The change in viscosity would decrease the blood flow.
- B. The change in viscosity would increase the blood flow.
- C. The change in viscosity would not change the blood flow.
- D. The change in diameter would decrease the blood flow.
- E. The change in diameter would increase the blood flow.
- F. The change in diameter would not change the blood flow.



For a smoker, blood viscosity increases by $\sim 10\%$, and the diameter of the pulmonary artery decreases by 10% . Assuming the pressure difference has not changed, which of the two effects would have a larger effect on the amount of blood flow?



- A. The change in viscosity.
- B. The change in diameter.
- C. The effects of the two changes would be equal.
- D. Neither would have an effect on the flow.
- E. There is not enough information to tell

