The influence of mechanical force on redox potentials

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The von Willebrand factor (vWf) is one of the major factors regulating bleeding. As bleeding enhances the shear flow experienced by the von Willebrand factor, disulfide bonds of cystine present in the vWf are reduced under mechanical stress. It is well-known that factors such as Temperature and pH values influence the thermodynamic behaviour of chemical bonds. We now aim at understanding the impact of mechanical stress. Our results show that redox potentials rise with mechanical force.