CHAPTER V

CONCLUSIONS

From all of the results, we can conclude that the more powerful preservation of erythrocyte 2,3-BPG occurred with potassium oxalate than sodium fluoride and heparin. The erythrocyte 2,3-BPG level could be preserved in their own plasma at $4^{\circ}C$ until 5 days of storage when anticoagulated in potassium oxalate. Exercise causes higher anaerobic energy metabolism at the beginning. Training muscle adapts in many ways from anaerobic to aerobic energy metabolism. These include an increase in erythrocyte 2,3-BPG level by different intensity and training status. More triglycerides are used as energy source and reduction in lactate level after longer period of training. Whereas, different exercise programs according to this study did not cause the change in the level of blood glucose. Moreover, *in vitro* study has shown that a decrease in blood pH, an elevated temperature, a marked decrease in pO_2 and an excess Ca^{2+} in erythrocyte induced by Ca^{2+} ionophore (A23187) are among several factors which occurred during exercise affecting the change in erythrocyte 2,3-BPG metabolism. The factors including pH 7.2, temperature of $43^{\circ}C$, a marked decrease in pO_2 and an excess Ca^{2+} in erythrocyte induced by 10 nmole of A23187 significantly cause the increase in 2,3-BPG levels. The mechanism of each factor that influences on erythrocyte 2,3-BPG metabolism is significant for further study. This study suggests that training with appropriate program is beneficial for the body to adapt from anaerobic to aerobic energy metabolism and, indeed, to achieve maximal performance in sport.