EFFECTS OF REPEATED BOUTS OF FUTSAL-SPECIFIC INTERMITTENT EXERCISE ON THE LEVELS OF SALIVARY IgA AND α-AMYLASE

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Introduction

Strenuous physical activity induces marked immunosuppression (1), which may cause upper respiratory tract infection (URTI). Thus, the possibility that chronic exercise at intermittent and high intensities such as futsal leads to URTI is an attractive hypothesis. The purpose of this study was to determine the variations of salivary IgA concentration and α-amylase activity induced by futsal-specific intermittent exercise.

Methods

Nine recreationally active male futsal players served as the subjects (height: 170.0±4.4 cm; body mass: 61.7±7.6 kg; body fat: 15.5±5.1 %; BMI: 21.3±2.1 kg/m^2). The protocol was composed of 5 minutes of warm-up, six 7-minute periods of game with 1 minute of rest, and cool-down. Salivary samples (IgA and α-amylase) were obtained from futsal players immediately before and after exercise. Salivary IgA concentration and α-amylase activity were determined by turbidimetric immunoassay and analyzed by an automated device, respectively.

Results & Discussion

Repeated bouts of futsal-specific intermittent exercise did not significantly affect the salivary IgA concentration, but showed a significant increase in α-amylase activity (Fig 1., $p<0.05$ compared to pre-exercise). The augmented salivary α-amylase activity after exercise may have improved the protective effect of saliva, as this enzyme has been demonstrated to inhibit bacterial attachment to oral surfaces (1). On the other hand, similar concentration of salivary IgA after exercise may not have reached the threshold to induce URTI.

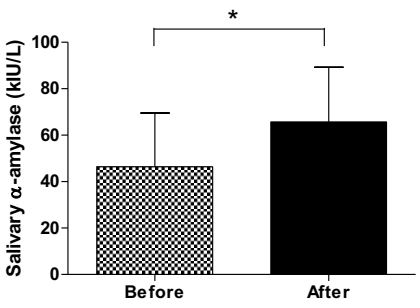

Fig 1. Salivary α-amylase activity before and after exercise. *: $p<0.05$

Conclusion

These findings indicate that increased salivary α-amylase activity may lead to improvement of the protective effect of saliva, and no alterations of salivary IgA concentration may contribute to a lower incidence of URTI following repeated bouts of futsal-specific intermittent exercise.

References

1. Bishop NC, Gleeson M. (2009). *Front Biosci*, 14: 4444-4456.