

運動後のフロッシング実施による運動パフォーマンスやバイオマーカーに関する検討 ～バスケットボール選手を対象に～

学籍番号 4122044

氏名 増田 修大

【目的】

男子バスケットボール選手において、運動後のフロッシングがバイオマーカーや運動パフォーマンスに与える影響を明らかにする。

【方法】

大学男子バスケットボール選手11名を対象としたが、介入期間中に除外基準に該当した2名を除外し、9名を本研究の解析対象とした。フロッシング実施条件と安静座位条件の介入を行い、運動前(ベースライン)、運動負荷直後、各条件実施直後、各条件実施30分後(Post30)に指先からの微量採血を施行し、跳躍高、跳躍減衰率、20mスプリント、血中乳酸、酸化ストレス(d-ROMs)および抗酸化能(BAP)測定、大腿部周囲径、筋硬度の評価をした。

【結果】

いずれの項目も交互作用は認めなかったものの、跳躍高、血中乳酸値、BAP、相対的酸化ストレス度および潜在的抗酸化能において、時間の要因で主効果が認められた($p<0.05$)。事後検定の結果、安静座位条件のみ運動負荷直後から条件実施直後、運動負荷直後からPost30で跳躍高が低下した($p<0.05$)。また、フロッシング実施条件のみ、条件実施直後からPost30で血中乳酸値が低下した($p<0.05$)。酸化ストレスは、運動負荷直後から条件実施直後で相対的酸化ストレス度の低下と潜在的抗酸化能の上昇がみられた($p<0.05$)。

【結論】

運動後のフロッシングは、明らかな運動パフォーマンスの改善はみられなかったが、跳躍高の低下を抑制する可能性が示唆された。また、筋硬度や酸化ストレス等のバイオマーカーへの明らかな影響はみられなかった。

Effects of post-exercise flossing on performance and biomarkers in basketball players

Student ID Number: 4122044

Name: MASUDA, Naohiro

[Purpose]

Temporary loss of lower extremity muscle strength has been reported in basketball players after games due to exercise-induced muscle damage. Recently, flossing with floss bands or compression bands has been used in sports settings during recovery. Flossing involves temporarily wrapping an elastic latex band around a joint or body part and moving it passively or actively to reduce pain, accelerate metabolism, and increase muscle output. At present, few reports have examined the effects of post-exercise flossing on exercise performance and biomarkers, such as muscle hardness and oxidative stress, in basketball players.

[Methods]

Eleven male college basketball players were initially enrolled in the study. However, only nine of these players were included in the final analysis after two were excluded during the intervention period based on the exclusion criteria. The intervention was conducted under both flossing and resting sitting conditions. Blood samples were collected from the fingertips before exercise (baseline), after exercise, immediately after flossing, and 30 minutes after flossing (Post30) to measure blood lactate, oxidative stress (d-ROMs), and antioxidant capacity (BAP). Thigh circumferential diameter, muscle hardness, jump height, jump decay rate, and 20-m sprint were also evaluated before and after exercise.

[Results]

Although there was no interaction for any of the factors, a significant time effect was observed for jump height, blood lactate levels, BAP, relative oxidative stress levels, and potential antioxidant capacity ($p < 0.05$). The results of the Bonferroni correction showed that jump height was significantly reduced from immediately after exercise loading to immediately after condition implementation and from immediately after exercise loading to Post30 only in the resting sitting condition ($p < 0.05$). In addition, the blood lactate levels were found to decrease from immediately after the condition to Post30 only in the flossing condition. Oxidative stress showed a decrease in relative oxidative stress levels ($p < 0.05$) and an increase in potential antioxidant capacity from the after exercise to immediately after the intervention ($p < 0.05$), and an increase in the relative oxidative stress level and potential antioxidant capacity at Post30 ($p < 0.05$).

[Conclusion]

Post-exercise flossing may suppress the decrease in jump height, although there was no obvious improvement in exercise performance. In addition, no apparent effects were observed in biomarkers, including muscle hardness and oxidative stress.