

BRANCHED-CHAIN AMINO ACID SUPPLEMENTATION IN DIVISION 1 FCS FOOTBALL PLAYERS

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ABSTRACT

Delayed-onset muscle soreness (DOMS) has been shown to reduce the maximum voluntary contraction of muscle as well as force production from isometric contraction which can physically inhibit athletic performance. Additionally, the pain or soreness that results delayed-onset muscle soreness can also impact the training and performance of athletes. However, additional research needs to be done on possible alleviation methods for delayed-onset muscle soreness. This study examined the effect of branched-chain amino acid supplementation (BCAA) on DOMS in division one FCS football players. 30 participants took part in a three-day exercise protocol in order to examine these possible effects. Participants had delayed-onset muscle soreness measured using a visual analog scale prior to the first day of the exercise protocol, 24 hours following the first exercise session, and 24 hours following the third exercise session.

INTRODUCTION

- Collegiate football players are in need of an NCAA-legal means for reducing the severity of DOMS they experience following training and competition.
- BCAA supplementation is one of the few supplements approved by the NCAA that can possibly give athletes an advantage in training and competition.
- BCAA supplementation has been shown to reduce the severity of DOMS in non-trained and resistance trained populations.
- Additional research needs to be completed on using BCAA supplementation as a means of reducing DOMS severity in this population,

OPERATIONAL DEFINITIONS

- **Delayed-Onset Muscle Soreness (DOMS)**- Muscle soreness or pain that experienced 24 hours following resistance exercise
- **Severity of DOMS**- Level of perceived muscle pain experienced by subjects rated on a visual analog scale from 1 (no pain) to 10 (unbearable pain).
- **BCAA supplement**- Supplement consisting of the branched-chain amino acids leucine, isoleucine, and valine
- **Division 1 FCS football player**- A current member and eligible of an NCAA Division 1 FCS football team.

PURPOSE STATEMENT

- The purpose of this study was to examine the effects of BCAA supplementation on reducing the severity of DOMS in Division 1 FCS football players.
- It was hypothesized that BCAA supplementation will reduce the severity of DOMS in this population following exercise.

METHODS

RECRUITMENT

- Spread Awareness of study through email, text message, and community board postings

CRITERIA

- Active and eligible member of a Division 1 FCS football team
- Pass standards for candidate screening interview and PAR-Q and sign informed consent agreement
- 30 eligible participants selected

RESEARCH DESIGN

- SIMILAR TO THAT OF KEPHART ET AL. (2016)
- RANDOMIZED, SINGLE-BLIND, QUANTITATIVE RESEARCH APPROACH

EXERCISE PROTOCOL

- 3 DAY PROTOCOL COMPLETED ON CONSECUTIVE DAYS
- 10 SETS OF 5 REPS AT 80% OF EACH PARTICIPANT'S ONE-REP MAX ON BARBELL BACK SQUAT

BCAA SUPPLEMENTATION AND DOMS MEASUREMENT

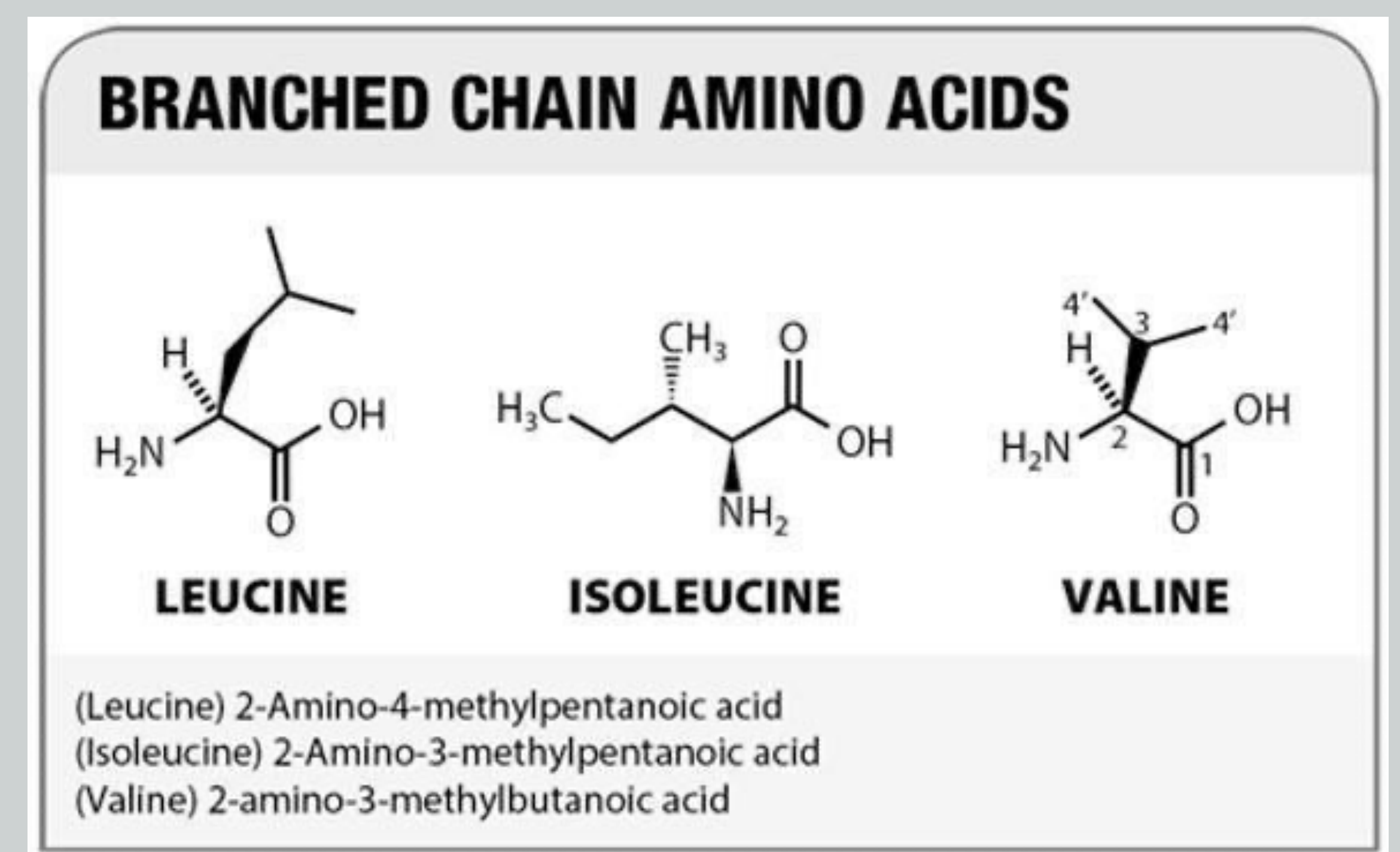
- SEVERITY OF DOMS MEASURED USING VISUAL ANALOG SCALE
- PARTICIPANTS RECEIVED EITHER A BCAA SUPPLEMENT (3G L-LEUCINE, 1G L-ISOLEUCINE, AND 2G L-VALINE) IN 600ML OF TAP WATER OR EXCLUSIVELY 600ML OF TAP WATER IMMEDIATELY FOLLOWING EACH EXERCISE BOUT AND 24 HOURS POST-EXERCISE.

DATA ANALYSIS

- ANOVA AND IBM SPSS SOFTWARE UTILIZED
- BASIC DESCRIPTIVE STATISTICS
- BIVARIATE CORRELATIONS AT THE TWO-TAILED LEVEL (SIGNIFICANCE AT $P \leq 0.05$).
- LINEAR REGRESSION MODELS

DISCUSSION

- Some limitations to this study were that all athletes were members of the same team. Ideally, this study would include athletes from multiple programs
- It was assumed that participants of this study were representative of division 1 FCS football players in the United States.
- Further research could be done due to examine the effects of BCAA supplementation on DOMS in more diverse athletic populations.



[Molecular structure of the branched-chain amino acids] (n.d.).

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References

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