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Prevalence, Knowledge, and Influence of Whey Protein and Other Supplements on Athletes

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BACKGROUND

In order to keep athletics competitive there has been a push in the use of ergogenic aids and performance enhancing supplements to give athletes the "competitive edge." This push can come from many sources: coaches, media, teammates, family, trainers, strength and conditioning specialists. These sources may not be giving the athlete all of the right information. Without the right information, athletes are making major dietary changes without knowing what all the effects are. "A high portion of athletes do not meet their energy requirement, leading to important energy and nutritional deficits[1]" (326). Whey protein is a mixture of globular proteins isolated from whey; commonly marketed as a dietary supplement."[2] There are many benefits to adding whey protein to an individual's diet. For starters, increasing protein can benefit physically active people such as elite athletes or military personnel during increased physical demand.[3] Our muscles, are made up of similar protein as the amino acids found in beef, so it makes since that whey protein would support the skeletal muscle in humans. In fact, consuming protein at twice the recommended daily allowance can prevent the loss of lean body mass and help with weight loss in overweight or obese individuals.[4] Another benefit is the positive effect on immune response. In the healthcare field, as an athletic trainer, you may notice athletes falling ill from time to time. This can be due to the decrease immune function from increased activity. It could be hypothesized that the ingestion of high quality protein can support immune health and response in people who engage in exhaustive and intense exercise. This is done by providing alpha defensins, these provide a wide range of anti-bacterial and antifungal activity.[5]

OBJECTIVE

The purpose of this study was to determine the prevalence and knowledge of ergogenic supplements among NCAA Division III college athletes. The USDA recommends 0.37 grams of protein per pound of an individual's body weight. With supplement companies advertising products with 24 grams of protein per container, 2 "scoops" of protein powder per serving, 2.1 grams per scoop. This may be accompanied by other protein rich sources in the forms of protein bars, meat products, and even some plant based products that may already be incorporated into an individual's diet.

DESIGN and SETTING

Survey research design in a DIII setting.

Surveys were handed out to various teams, both men's and women's on a division III campus. They were given a survey and a cover letter, explaining the purpose of the research. The independent variable of this study was division III male and female athletes from various sports including football, soccer, volleyball, basketball, lacrosse, baseball and softball. The dependent variable of this study is the knowledge prevalence of athletes using ergogenic protein supplements, and the knowledge of the supplement itself and how they work on the human body.

PARTICIPANTS

A convenience sample of athletes (N=205) were surveyed with a 78% (n=160) return rate. 33.1% (n=52) were females and 66.2%

(n=104) were males. 42.9% (n=67) played football, 21.2% (n=33) basketball, 9.6% (n=15) volleyball, .6% (n=1) for both soccer and swimming. 39.7% (n=52) were freshman in college, 24.4% (n=32) were sophomores in college, 16.8% (n=22) were juniors in college, 18.3% (n=24) were seniors in college.

INTERVENTION

The research was an exempted review, approved by an IRB, content validity was established using a table of specifications, and face validity was established using a panel of experts. Chi Square tests were used with gender as the grouping variable, and a Kruskal Wallis test was used with current sport as the grouping variable. An alpha level was set at p=.05 a priori. SPSS 24.0 was used to analyze all data

MAIN OUTCOME MEASUREMENT

Questions 1, 3-5, and 7-9, all used a 5 point likert scale (Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), and Strongly Disagree (1)). Questions 6, 10, and 11-13 were all demographic questions with various scales. Question 2 was a yes or no question, with an open ended qualitative aspect. This was thematically coded.

RESULTS

There were questions from the survey instrument that pertained to the athlete's knowledge of whey protein. 56% (n=90) of the participants disagreed to that they used whey protein on a regular basis. 62.2% (n=92) of participants agreed that whey protein was the only other supplement that they used. 40% (n=64) of participants felt that they knew the possible side effects of whey protein consumption, while 37% (n=59) felt they did not know of any possible side effects. 49.1% (n=78) agreed that they knew how to properly use whey protein. 55.7% (n=88) agreed that they knew how protein works with the body. There were also questions to coincide with the prevalence of athletes using whey protein. 52.6% (n=61) of participants answered that they started using whey protein between the ages of sixteen and eighteen. 44.6% (n= 77) disagreed to having a strength and conditioning coach outside of their sport season. 70% (n=112) disagreed to having any body image concerns that prompted them to use whey protein .5% (n=122) disagreed to being pressured to use whey protein in any way. There was a statistically significant data found about the regular use of whey protein ($x^2 = 43.491$, df = 6, p= .000) with it being more prevalent in football than any other sport at the institution. Finally, there was a statistically significant difference between athletes who are knowledgeable about whey protein as a whole and how it works, and those who are not ($x^2 = 21.323$, df = 6, p= .002) where 52.53% of athletes agreed or strongly agreed.

CONCLUSION

This study found that most athletes feel they are knowledgeable about whey protein and knowledgeable about how to effectively use protein powder. It also showed, as expected, that whey protein was more prevalent amongst males and amongst football players, keeping in mind the limitations of the disparity between participants. This study can be used by athletic trainers to better educate athletes who are using whey protein, or are thinking about using whey protein and want more information.

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KEY WORDS: *Whey protein, Division III athlete, sport performance, athletic training, coaches, ergogenic strength*