Effects of a Required University Level Conceptually-based Basic Physical Education Course on Perceived and Determined Nutritional Knowledge

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Introduction
Poor dietary behavior and sedentary lifestyles have resulted in an increased numbers of overweight and obese individuals in the United States. Reported findings (Kuczmarski, Flegal, Campbell, & Johnson, 1994; Flegal, Carroll, Ogden, & Johnson, 2002) indicate as many as 65 percent of Americans are overweight and 31 percent are obese. Similar findings have been reported in children and adolescents. Hedley, Ogden, Johnson, Carroll, Curtin, & Flegal, 2004, reported 16 percent of children between the ages of 6 to 19 years are overweight. This finding reflects the prevalence rate of obesity has doubled in children and tripled in adolescents over the last two decades. Relative to inactivity levels, a recent report from the U.S. Department of Health and Human Services (1996), indicated 60 percent of Americans are not regularly active and 25% lead completely sedentary lifestyles.

The risk of obesity and inactive lifestyles has been clearly established. Chronic diseases such as diabetes mellitus, hypertension, hypercholesterolemia, hyperinsulinemia, hypertriglyceridemia, and coronary heart disease as well as, reduced life expectancy and early mortality have been linked to obesity (Hill, Wyatt, Reed, & Peters, 2003; Pi-Sunyer, F. 1991; Pi-Sunyer, 2002).

As a result of this association between disease risk and obesity and sedentary lifestyles, the need for Americans to achieve and maintain a healthy body weight, to become physically active, and to lower their disease risk has become a nationwide concern. The challenge of course, becomes how do we help the 90 million Americans already affected by chronic diseases and/or help the rest of the population to make the changes in their lifestyles necessary to prevent or reverse this negative trend? Proper education is often argued as one of the primary measures of intervention.

At the University level, it has become common for some form of a conceptually-based health-related fitness course to be offered either as an elective or required general education course. Hensley (2000) reported that approximately 60% of universities currently offer either an elective or required conceptually-based health-related fitness course in their general education curriculum.

Previous research has investigated the perceived effects of required conceptually-based basic physical education activity courses. While the findings of these studies have been positive, it is important to recognize the results of these studies were based on student perception and/or determined overall health-related fitness (HRF) knowledge. Studies establishing the specific effects of conceptually-based physical education courses on perceived and/or determined nutritional knowledge have not been reported. With the current prevalence of obesity in the United States, studies of this nature seem warranted.

The purpose of this study was to establish differences in determined and perceived nutritional knowledge following completion of a required conceptually-based basic physical education course. Ninety university level students served as subjects for this study. All were currently enrolled in a required conceptually-based health-related fitness course. All were taught by the same instructor. Previous research (Adams, Higgins, Adams, and Graves, 2004, April) established the homogeneity of the group with
student’s that had never had any Concepts of Health-Related Fitness instruction.

Two instruments were used in this study. The first was designed to measure actual, current nutritional knowledge. This instrument consisted of 14 questions (7 multiple choice and 7 true-false questions) designed to determine nutritional knowledge. All questions were part of a final comprehensive course examination that had been previously established as reliable and content valid (Adams, Higgins, Adams, & Graves, 2004).

The second instrument was an attitudinal survey designed to determine perceived health-related fitness knowledge. Specifically, and relative to perceived nutritional knowledge, student perception was determined by having students respond to the following question “How would you rate your current level of knowledge regarding health and nutrition?” A 5-point Likert scale ranging from “excellent” to “poor” was used. This instrument had been previously used (Adams & Brynteson, 1992; Brynteson & Adams, 1993) and was considered reliable and valid.

Paired T-tests were conducted to determine significant differences in the tested variables from pre-test to post-test. Results indicated statistically significant differences in how students rated their perceived level of knowledge regarding health and nutrition (T(76) = 5.470, p = .000), as well as in actual, determined student nutritional knowledge (T(89) = -9.375, p = .000). Mean pretest scores (50%) indicated a below average actual nutritional knowledge level. Post tests scores (79.29%) demonstrated an above average level of actual nutritional knowledge.

The results of this study suggest that students completing the conceptually-based health-related fitness course presented statistically significant gains in actual nutritional knowledge. This finding is consistent with previous research (Adams, et al., 2004; Brynteson, Hoag, & Schollmeier, 1980; Corbin & Laurie, 1978; Corbin, 1981; Ermier, Kvar, & Reinders, 1993; Laurie, 1981; Miller & Housner, 1998; Nahas, 1992; Slava, Laurie, & Corbin, 1984; Terry, Erickson, & Johnson, 1977) on the effectiveness of conceptually-based fitness courses on gains in fitness knowledge. The gains shown in nutritional knowledge were also consistent with gains and retention of knowledge (70-85%) reported in other areas of learning and cognition (Pascarell & Terenzini, 2005).

Attitudinally, students perceived they had significantly higher levels of knowledge and a more positive attitude towards health and nutrition following course completion. This gain in positive attitude is consistent with the work of Brynteson and Adams (1993) who determined that alumni graduating from universities that required conceptually-based physical education presented significantly higher perceived 1) value on the course contribution to their perceived health-fitness knowledge, and 2) value of the role of exercise. Additionally, the alumni that had graduated from universities that required conceptually-based physical education placed significantly greater value on how frequently and how much they participated in physical activity.

It has been suggested that a positive attitude is often a motivating factor in influencing students to begin using skills and knowledge they have learned (Campbell, 1968). When you consider that historically, studies in physical education have shown individuals that possess more positive attitudes towards fitness tend to exercise more frequently and more intensely (Harris and Associates, 1979; McPherson, Paivio, Rechnitzer, Pickard, & Lefcoe, 1967; Neale, Sonstroem, & Metz, 1969, the positive changes in attitude found in this study relative to perceived nutritional knowledge may suggest students will be more likely to take positive steps in their lives to establish proper dietary behaviors that will lead to more appropriate body weight. Hill, Wyatt, Reed and Peters (2003) have estimated that altering energy balance as little as 100 kilocalories per day by diet and exercise intervention could prevent weight gain in most of the population and may play a significant role in controlling the current obesity epidemic.

It was concluded that immediately following completion of a conceptually-based health-related fitness course, students demonstrate significantly greater levels of perceived and determined nutritional knowledge.

References
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