

## A study of Knowledge, attitudes, and behaviors of Whey Protein consumption for Institute of Physical Education Chonburi Campus Students

Pimprapa Intahlor\*, Nutdanai Jaronsukwimal, Patantiya Singgram, Jantree Ladawon, Saowapha Wanichachewa, Mantira Phongampai, Panutsarom Nitiwongpond, Pattama Kherdkarn, Benthawa Surasartpisal, Nongluck Sangsawhang, Institution of Physical Education Chonburi Campus, Institution of Physical Education Lampang Campus, Institution of Physical Education Anghong Campus, Institution of Physical Education Trang Campus.

### Abstract

The research aimed 1) to study the knowledge about Whey Protein for Institute of Physical Education Chonburi Campus Students, 2) to study the attitudes towards Whey Protein consumption for Institute of Physical Education Chonburi Campus Students, and 3) to study the behaviors of Whey Protein consumption for Institute of Physical Education Chonburi Campus Students.

The sample group used in this research included 290 Institute of Physical Education Chonburi Campus Students selected by Accidental Sampling Method. The instrument used was questionnaire. The data analysis used was Excel Program by using the statistics value, consisting of Percentage, Arithmetic Mean, and Standard Deviation.

The respondents were male (74.48%), and female (25.52%), studying at the Faculty of Education (41.38%), Faculty of Sport and Health Sciences (40.69%), and Faculty of Liberal Arts (17.93%), 3<sup>rd</sup> year students (48.28%), not having medical problems (96.55%), and having medical problems (3.45%).

The results of a study of knowledge, attitudes, and behaviors about Whey Protein consumption in the Institute of Physical Education Chonburi Campus Students revealed that:

1. The knowledge about Whey Protein in terms of correct knowledge identified that the students had knowledge about Whey Protein at the highest level included 'Whey Protein is the Protein extracted from the milk serum left from the cheese production process' (75.86%), secondly was 'Whey Protein can repair the deterioration of muscles or losing muscles during hard exercise' (73.79%), and the least level was 'the persons with milk allergy have to consume isolate or hydrolyzed Whey Protein' (51.03%). Regarding incorrect knowledge, it was found that the highest level included 'long time consumption of Whey Protein can cause cancer' (61.72%), secondly was 'Isolate Whey Protein is processed by specific process which makes tiny molecules, bitter taste, easy to be absorbed, and expensive' (51.72%), and the least level was 'Whey Protein consumption will make kidney work hard and long-term damage' (45.86%).

2. According to attitudes about Whey Protein, it was found that the students who had attitudes about Whey Protein at the highest level include 'the purpose of drinking Whey Protein in the group of people who exercise was to enhance the muscle mass' ( $\bar{x}$ = 3.43), secondly was about 'Drinking Whey Protein makes good shape' ( $\bar{x}$ = 3.24), and the least was 'Drinking Whey Protein was such a difficult thing', and 'Drinking Whey Protein was such a waste of money' ( $\bar{x}$ = 1.98).

3. Regarding the behaviors of Whey Protein consumption, it was found that the students who had the level of behaviors on Whey Protein consumption at the highest level included 'You



drink Whey Protein after exercise' ( $\bar{x}$ = 3.23), secondly was 'You follow the drinking instruction as indicated in the product label of Whey Protein' ( $\bar{x}$ = 2.84), and the least was 'You drink Whey Protein spun together with bananas' ( $\bar{x}$ = 1.32).

**Key Words:** Whey Protein ,Knowledge, Attitudes, Behavior

### Introduction

Today, science and technology in food processing is really growing up. There are various kinds of food processing to respond the consumers' needs. For the group of people who need to enhance muscles, they usually choose food in the form of protein type since the duty of protein is to repair the damaged muscles by changing the eaten protein from food to become Amino Acid then the body uses that acid to produce new cells to replace the lost ones. The product which is popular among the group of people who need to enhance muscles is called 'Whey Protein' which its qualification helps increase muscle mass for body. Whey Protein is produced from the milk serum then it is processed to become the powder which can be made and consumed conveniently. Lex Derlabarchow (2010) claimed that Whey Protein is the source of high quality protein completely rich of 20 kinds of BCAAs and Amino Acid. It is a kind of protein easy to be digested in the body and be able to absorb through the muscles quickly, as well as be able to enhance muscles to have bigger size. Moreover, Whey Protein helped repair the muscles from deterioration or loss during the exercise time effectively.

The Institute of Physical Education is the institute producing the graduates, and developing the Physical Education Personnel, sport, recreation, sports and health sciences as the main purposes. The institute consisted of 3 Faculties: Faculty of Education, Faculty of Liberal Arts, and Faculty of Sports and Health Sciences. Now there are total 1043 students.

The instructional management is mostly in terms of integration of learning and teaching unit with the sport, exercise, and recreation. Not only classroom instructions, but also experiences on exercise and sport that the students have to practice by themselves, for example, it might be the practice in the Institute of Physical Education Chonburi Campus itself, or it might be external establishment. It can be seen that most of the life style use of the students involve with the physical education, recreation, and sports science. All of these relate to the body, both self-caring and caring others, in order to prepare the body to be ready to do all activities such as interested sport rehearsal, etc. In this present time, the students are interested and turn to exercise more to increase the muscles beautifully. According to beautiful personality and gestures of body as well as body movement, they all affect the stimulation from the watchers in the fitness class, and the places used for experiences practice. The students depend on their helper which helps them exercise, which is, consuming Whey Protein. Not only disciplines of exercise which has to be done regularly, but also the rest and food consumption viewed as necessary as the disciplines of exercise. If 3 things mentioned above are not done altogether, it is difficult to achieve the desirable shape. For drinking Whey Protein to enhance the muscle reinforcement, however, without knowledge of Whey Protein in correct ways, to consume Whey Protein might not help all exercisers get benefits as it should be. Hence, anyone who consumes Whey Protein should realize the principles how to drink Whey Protein correctly in order to get the utmost benefits and effectiveness.

As mentioned above, the researcher is interested to study knowledge, attitudes, and behaviors of Whey Protein consumption for Institute of Physical Education Chonburi Campus Students, hence the researcher researched about knowledge, attitudes, and behaviors about Whey Protein consumption in the Institute of Physical Education, Chonburi Campus Students to perceive that how the target group had knowledge, attitudes, and behaviors of Whey Protein consumption.

**Purposes**

1. To study the knowledge about Whey Protein for Institute of Physical Education Chonburi Campus Students.
2. To study the attitudes towards Whey Protein consumption for Institute of Physical Education Chonburi Campus Students.
3. To study the behaviors of Whey Protein consumption for Institute of Physical Education Chonburi Campus Students.

**Research Scopes**

Population: 1043 Institute of Physical Education Chonburi Campus Students

Sample Group: 290 Institute of Physical Education Chonburi Campus Students

**Research Instrument**

The instrument used for data collection was questionnaire created to ask the sample group. The questionnaires were created in accordance with the research framework in a type of close-ended questions determined for the respondents to choose and answer the questions, and the open-ended question which let the respondents answer the questions independently. The contents of questionnaires were divided into 4 Parts as follows:

**Part 1:** the questionnaire of generally personal data of the respondents was about the general information of respondents. The respondents have to choose only one answer in accordance with their own characteristics.

**Part 2:** the questionnaire of knowledge about Whey Protein. It is a kind of choice 'Yes', 'No', and 'Don't know', total 10 question items.

**Part 3:** the questionnaire about attitudes towards Whey Protein consumption. The question was in a type of Rating Scale by Likert to study the attitudes towards Whey Protein consumption. The scores were divided into 4 levels, total 10 question items.

**Part 4:** the questionnaires about behaviors affecting Whey Protein consumption. The questions were in a type of Rating Scale by Likert to survey the behaviors of Whey Protein consumption. The scores were divided into 4 levels, total 10 question items.

**Data Collection**

The primary data were collected by Field Work collection from 290 Institute of Physical Education Chonburi Campus Students.

**Data Analysis**

The data were analyzed, and concluded the study results from the questionnaires, then interpreted for analyzing and finding out knowledge attitudes, as well as behaviors of Whey Protein consumption of the sample group. The interpretation was divided into 2 parts:

1. General information of the respondents, proposed by descriptive explanation, and the statistics shown by percentage and frequency.
2. Knowledge, attitudes, and behaviors of Whey Protein consumption, proposed by descriptive explanation, and the



statistics shown by percentage, frequency, mean, and standard deviation.

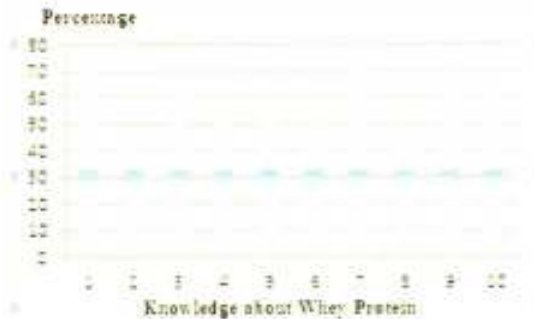
**Conclusion**

Concerning this data analysis, the results of this research can be concluded as follows:

**Part 1:** Generally personal data: male (74.48%), and female (25.52%), they generally studied in the Faculty of Education (41.38%), Faculty of Sport and Health Sciences (40.69%), and Faculty of Liberal Arts (17.93%), most of the students were studying at the 4<sup>th</sup> Year (26.54%), the 3<sup>rd</sup> Year (48.28%), the 2<sup>nd</sup> Year (18.97%), and the 1<sup>st</sup> Year ( 6.21%). And for the medical problem, the students did not have any medical problems (96.55%), and had medical problems (3.45%).

**Part 2:** Regarding the analysis of knowledge level about Whey Protein of the sample group, it could be concluded as follows:

**Figure 1 : Level of knowledge about Whey Protein**



**Knowledge about Whey Protein Number 1-10**

1= Whey Protein is the Protein extracted from the milk serum left from the cheese production process. 2= Whey Protein consumption will make kidney work hard and long- term damage. 3= Whey Protein helps reduce fat and strengthen muscles. 4= Concentrated Whey Protein is more intensive than Isolate Whey Protein. 5= The persons with milk allergy have to consume Isolate or Hydrolized Whey Protein. 6= Isolate Whey Protein is processed by

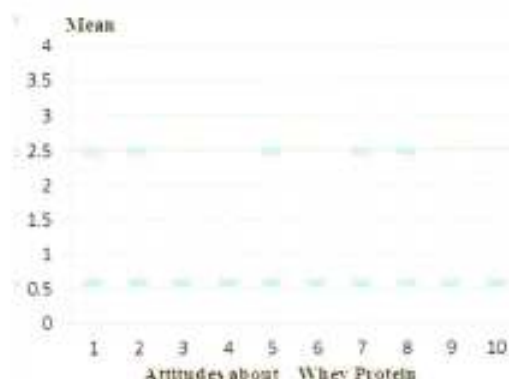
specific process which makes tiny molecules, bitter taste, easy to be absorbed, and expensive. 7= Whey Protein is a high quality Protein sources rich of complete BCAAs and Amino Acid. 8 =To lose weight, it has to consume Isolate or Hydrolized Whey Protein. 9= Whey Protein can repair the deterioration of muscles or losing muscles during hard exercise. 10=Long time consumption of Whey Protein can cause cancer.

Concerning the Figure 1 in terms of correct knowledge, divided into 5 items, the students had knowledge about Whey Protein at a high level, which included, 'Whey Protein is the Protein extracted from the milk serum left from the cheese production process' (75.86%), 'Whey Protein can repair the deterioration of muscles or losing muscles during hard exercise' (73.79%), Whey Protein is high quality Protein sources rich of complete BCAAs and Amino Acid (71.72%). The students had knowledge about Whey Protein at the moderate level included 'Whey Protein helps reduce fat and strengthen muscles (63.79%), and 'the persons with milk allergy have to consume isolate or hydrolyzed Whey Protein' (51.03%).

In terms of incorrect knowledge, it was divided into 5 items, which was, the students had knowledge about Whey Protein at the moderate level, which included, 'long time consumption of Whey Protein can cause cancer' (61.72%), 'Isolate Whey Protein is processed by specific process which makes tiny molecules, bitter taste, easy to be absorbed, and expensive' (51.72%), and 'Concentrate Whey Protein is more intensive than Isolate Whey Protein' (51.72%), the students had knowledge about Whey Protein at the low level, which included, 'To lose weight, it has to consume Isolate or Hydrolized Whey Protein' (47.93%), and 'Whey Protein consumption will make kidney work hard and long- term damage' (45.86%).

**Part 3:** Regarding the analysis of attitudes level about Whey Protein of the sample group, it could be concluded as follows:

**Figure 2: Attitudes level about Whey Protein**



**Attitudes about Whey Protein Number 1-10**

1=Drinking Whey Protein makes good shape. 2 = Drinking Whey Protein is necessary to the athletes. 3 =Drinking Whey Protein was such a waste of money, 4 =Drinking Whey Protein was such a difficult thing. 5 =Drinking Whey Protein without exercise can be fit. 6 =The persons without exercise. can drink Whey Protein. 7 =Various tastes of Whey Protein affect the drinking selection. 8 =The purpose of drinking Whey Protein among exercisers is to increase the muscles mass. 9 =The persons who drink Whey Protein are mostly persuaded by their persons around. 10 =Whey Protein is a consumed product due to the social trends.

According to the Figure 2, the students who had attitudes about Whey Protein at the really agree level consisted of 'the purpose of drinking Whey Protein in the group of people who exercise was to increase the muscle mass' ( $\bar{x}=3.43$ ), 'Drinking Whey Protein makes good shape' ( $\bar{x}=3.24$ ), and various tastes of Whey Protein affect the drinking selection of Whey Protein ( $\bar{x}=3.21$ ).

The students who had attitudes about Whey Protein at the agree level consisted of 'Drinking Whey Protein is necessary to the athletes' ( $\bar{x}=2.97$ ), 'Drinking Whey Protein

without exercise can be fit' ( $\bar{x}=2.54$ ), 'Whey Protein is a consumed product due to the social trends' ( $\bar{x}=2.41$ ), 'The persons without exercise can drink Whey Protein' ( $\bar{x}=2.34$ ), and 'The persons who drink Whey Protein are mostly persuaded by their persons surrounded' ( $\bar{x}=2.33$ ).

The students who had attitudes about Whey Protein at disagree level consisted of 'Drinking Whey Protein was such a waste of money', and 'Drinking Whey Protein was such a difficult thing' ( $\bar{x}=1.98$ ).

**Part 4:** According to the analysis of behaviors level for Whey Protein consumption of the sample group, it could be concluded as follows:

**Figure 3: The level of behaviors for Whey Protein consumption**



**Behaviors of Whey Protein consumption Number 1-10**

1= You drink Whey Protein in the morning. 2=You drink Whey Protein after exercise. 3= You drink Whey Protein before bed. 4=You drink Whey Protein instead of consuming the main course. 5= You drink Whey Protein on the day that not taking exercise. 6= You follow the drinking instruction as indicated in the product label of Whey Protein. 7= The quantity of Whey Protein you drink is more than what's recommended in the label. 8 =You drink Whey Protein without exercise. 9 =You drink Whey Protein mixed with span chicken breast. 10 =You drink Whey Protein spun together with bananas.



Regarding the Figure 3, the students who had the level of behaviors of Whey Protein consumption at the highest level consisted of 'You drink Whey Protein after exercise' ( $\bar{x}=3.23$ ).

The students who had the level of behaviors for Whey Protein consumption at a high level consisted of 'You follow the drinking instruction as indicated in the product label of Whey Protein' ( $\bar{x}=2.84$ ), 'You drink Whey Protein without exercise' ( $\bar{x}=2.67$ ), 'You drink Whey Protein instead of eating the main course' ( $\bar{x}=2.64$ ), and 'You drink Whey Protein before bed' ( $\bar{x}=2.21$ ).

The students who had the level of behaviors of Whey Protein consumption at a little level consisted of 'You drink Whey Protein in the morning' ( $\bar{x}=1.91$ ), 'You drink Whey Protein on the day that not taking exercise' ( $\bar{x}=1.53$ ), 'You drink Whey Protein with the spun chicken breast' ( $\bar{x}=1.44$ ), 'The quantity of Whey Protein you drink is more than what's recommended in the label' ( $\bar{x}=1.43$ ), and 'You drink Whey Protein spun together with bananas' ( $\bar{x}=1.32$ ).

## Discussion

For the general information of the students in the Institute of Physical Education, Chonburi Campus, it identified that the students were male (74.48%), and female (25.52%), studying at the Faculty of Education, and the Faculty of Sport and Health Sciences (41.38%), and (40.69%), respectively, and Faculty of Liberal Arts (17.93%). In terms of the Year of Study, it was divided into the 4<sup>th</sup> Year (26.54%), the 3<sup>rd</sup> Year (48.28%), the 2<sup>nd</sup> Year (18.97%), and the 1<sup>st</sup> Year (6.21%), and the medical problem was found that the student had no medical problem (96.55%) and had the medical problem (3.45%), respectively.

Regarding the analysis of level knowledge about Whey Protein of the

students, in terms of correct knowledge, it was divided into 5 items and the students had knowledge about Whey Protein at a high level included 'Whey Protein is the Protein extracted from the milk serum left from the cheese production process' (75.86%), 'Whey Protein can repair the deterioration of muscles or losing muscles during hard exercise' (73.79%), and 'Whey Protein is high quality Protein sources rich of complete BCAAs and Amino Acid (71.72%)'. For the students who had knowledge about Whey Protein at the moderate level included 'Whey Protein helps reduce fat and strengthen muscles' (63.79%), and 'the persons with milk allergy have to consume isolate or hydrolyzed Whey Protein' (51.03%). Regarding the incorrect knowledge divided into 5 items, it was found that the students which had knowledge about Whey Protein at the moderate level included 'long time consumption of Whey Protein can cause cancer' (61.72%), 'Isolate Whey Protein is processed by specific process which makes tiny molecules, bitter taste, easy to be absorbed, and expensive' (51.72%), and 'Concentrated Whey Protein is more intensive than Isolate Whey Protein (51.72%)'. Concerning the students who had knowledge about Whey Protein at the low level included 'To lose weight, it has to consume Isolate or Hydrolyzed Whey Protein' (47.93%), and 'Whey Protein consumption will make kidney work hard and long-term damage' (45.86%). It could be seen that most of the students still had the level knowledge at moderate-low level. This was because they perceived about Whey Protein at a primary level only. This was in accordance with the research of Krissana Praoprerdpirom (2004) about the Knowledge Attitudes and Behaviors of consumers Whey Protein of Athletic Club Air Force, Donmueang, indicated that the respondents mostly had knowledge about



Whey Protein at the moderate level because they did not know the depth information of Whey Protein.

For the analysis of attitudes level about Whey Protein of the students, it was found that most of the students had the attitudes about Whey Protein at Agree level in terms of 'Drinking Whey Protein is necessary to the athletes' ( $\bar{x}=2.97$ ), 'Drinking Whey Protein without exercise can be fat' ( $\bar{x}=2.54$ ), 'Whey Protein is a consumed product due to the social trends' ( $\bar{x}=2.41$ ), 'Persons without exercise can drink Whey Protein' ( $\bar{x}=2.34$ ), and 'The persons who drink Whey Protein are mostly persuaded by their persons surrounded' ( $\bar{x}=2.33$ ). Because most of the question items were about exercise and sport, considered as a part of daily life in the Institute of Physical Education, Chonburi Campus which had been using the sport and exercise as a mainly part of instructional management already. Moreover, there were some students had attitudes about Whey Protein at the Really Agree Level, which consisted of 'Drinking Whey Protein to enhance the muscle reinforcement' ( $\bar{x}=3.43$ ), 'Drinking Whey Protein makes good shape' ( $\bar{x}=3.24$ ), and 'Various tastes of Whey Protein affect the drinking selection' ( $\bar{x}=3.21$ ). Because most of the question items in this part was about the results of Whey Protein consumption which affect the body, which was the empirical evidence since the students had good attitudes towards the question items, and the minority of them had the attitudes about Whey Protein at Disagree Level, which consisted of 'Drinking Whey Protein was such a waste of money', and 'Drinking Whey Protein was such a difficult thing' ( $\bar{x}=1.98$ ) because the students had learned about Whey Protein consumption. Moreover, since they had direct experiences from the instructions, self-consumption, and regular interaction among the Whey Protein consumers, they

knew the principles and purposes of Whey Protein consumption correctly. This was in accordance with the research of Nitiya Rattanapanont (2004:58) about the principles on Whey Protein, which could be concluded that Whey Protein was a high quality Protein sources full of BCAAs and Amino Acid completely, 20 kinds, and it was easy for the body to digest and absorb for muscles building quickly. Furthermore, it strengthened the muscles mass to have bigger size. Furthermore, it helped repair the deterioration or damage of the muscle during had exercise effectively. In addition, Whey Protein was a protein extracted from cow milk by bringing the cow milk sorted out from the cheese making process to extract only carbohydrate and fat out in order to remain only pure and intensive protein, then it was passed through the dried process to let those intensive proteins were in the form of powder ready to drink. According to the attitudes about Whey Protein of the most of students, it indicated that Whey Protein was necessary to strengthen the muscles, and reduce the fatigue of muscles after exercise.

Regarding the analysis of behaviors level on Whey Protein consumption of the students, it was found that the students who had the behaviors level of Whey Protein consumption at the highest level consisted of 'You drink Whey Protein after exercise' ( $\bar{x}=3.23$ ) because it was the behaviors of the students who consumed Whey Protein regularly. The students who had the behaviors level of Whey Protein consumption at a high level included 'You follow the drinking instruction as indicated in the product label of Whey Protein' ( $\bar{x}=2.84$ ), 'You drink Whey Protein without exercise' ( $\bar{x}=2.67$ ), 'You drink Whey Protein instead of the main course' ( $\bar{x}=2.64$ ), and 'You drink Whey Protein before bed' ( $\bar{x}=2.21$ ). As a whole, it identified that a half of students had incorrect behaviors of

Whey Protein consumption, for example, 'Drinking Whey Protein without exercise', or 'Drinking Whey Protein instead of the main course'. These might affect the body to the malnutrition. While another group of students had the behaviors level of Whey Protein consumption at A little level, consisted of 'You drink Whey Protein in the morning' ( $\bar{x}=1.91$ ), 'You drink Whey Protein on the day that not taking exercise' ( $\bar{x}=1.53$ ), 'You drink Whey Protein mixed with spun chicken breast' ( $\bar{x}=1.44$ ), 'The quantity of Whey Protein you drink is more than what's recommended in the label' ( $\bar{x}=1.43$ ), and 'You drink Whey Protein spun together with bananas' ( $\bar{x}=1.32$ ). Regarding the information, it revealed that the some parts of students had good behaviors of Whey Protein consumption, for example, 'Drinking Whey Protein mixed with the spun chicken breast', 'You follow the drinking instruction as indicated in the product label of Whey Protein' This was in accordance with the research of Rojana Nujium (2009) about the results of supplemental Whey Protein affecting the body components, muscles strength in the weightlifting athletes, found that supplemental Whey Protein together with the Program of weightlifting rehearsal through 6 weeks affected the increase of body mass without fat, and reduced the fat quantity while the weight of body was not changed. It could be seen that if the students had good behaviors of Whey Protein consumption, it would help the body response completely and effectively.



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