



PROCEEDINGS

THE 1ST YOGYAKARTA INTERNATIONAL SEMINAR ON HEALTH, PHYSICAL EDUCATION, AND SPORTS SCIENCE.

Evidence-Based Practice of Sports Science in Education, Performance, and Health.

October 14th, 2017. Eastparc Yogyakarta, Indonesia



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YISHPESS PROCEEDINGS

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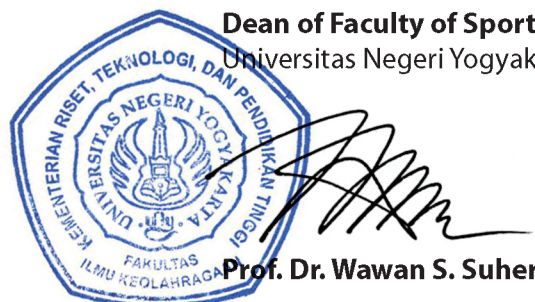
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October 14th, 2017

OPENING SPEECH

As the Dean of Faculty of Sport Sciences Universitas Negeri Yogyakarta, I would like to welcome and congratulate to all speakers and participants of the First Yogyakarta International Seminar on Health, Physical Education, and Sport Science (YISHPESS) 2017 entitled "Evidence-Based Practice of Sport Science in Education, Performance, and Health".

This international seminar is actually an implementation in the framework of the assessment of the achievements and sports culture in society that can support the achievements of the Indonesian people, so that there will be a significant role of practitioners, academicians, sport people, and sports observers from Universities, Institutions and Sports Organizations to help actively facilitate in the development, assessment of innovative sports science development so as to achieve sport achievements at the National and International level.

Finally, we thank all the committee of YISHPESS for their hard work in organizing this activity, and congratulate the invited speakers and all participants. Hopefully, this seminar is significant for the development of physical education, health, and sports sciences.

**Dean of Faculty of Sport Sciences,**
Universitas Negeri Yogyakarta
Prof. Dr. Wawan S. Suherman, M.Ed.


PREFACE

Alhamdulillahirobilalamin, thank Allah the First Yogyakarta International Seminar on Health, Physical Education, and Sport Science (YISHPESS) has been prepared well and on time. With all humility, we welcome and congratulate the speakers and participants of Yogyakarta International Seminar on Health, Physical Education, and Sport Science (YISHPESS) organized by the Faculty of Sport Sciences, Universitas Negeri Yogyakarta.

The YISHPESS 2017 is designed to updating and applying evidence-based practice in sports science aspects, including: education, performance and health. We hope that the invited speakers of this seminar can reduce the gaps between academic and field to get best output in the daily sport and health practices.

We would like to thank to Rector and the board of Universitas Negeri Yogyakarta for supporting this seminar come true. Praise and be grateful to the Lord, so that this proceeding can be issued. Hopefully, the publication of this proceeding can bring benefits to the participants in particular and readers in general.

Yogyakarta, October 14th, 2017
Chairperson of the Committee



Dr. Or. Mansur, M.S.

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CORRELATION BETWEEN PROTEIN INTAKE WITH MUSCLE STRENGTH OF ATHLETES

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Abstract

Objectives: The purpose of this study was to examine relationship protein intake with muscle strength of athletes.

Methods: The research was conducted by cross sectional design between September to October 2016. The number of sample in this research was 20 male table tennis athletes (age 20 ± 3.4 y.o. , weight 56.7 ± 12 kg, height 162.4 cm ± 8.9 cm). The instruments for measurement of muscle strength used handgrip dynamometer used. The consumption data was obtained by questionnaire of food recall 1 x 24 hours. Correlation between protein intake with muscle strength were analyzed using pearson correlation test.

Results: The result of the research showed that average of energy intake of athletes were 2.134 ± 231 kcal, the average of protein intake was 77.6 ± 21.1 g, the average intake of carbohydrate was 370.9 ± 49.5 g, and the average intake of fat was 47.2 ± 12.1 g per day. In addition, the energy intake was up to 76.5% of the demand of energy in a day, the protein intake was 73.7% and the fat intake was 51,8% from that of needed by an athlete. The results showed that the maximum score of muscle strength data was 65 kg and minimum score of muscle strength data was 24 kg. The average score of muscle strength data was 46.0 ± 13.3 kg.

Conclusions: Most of the muscle strength data of table tennis athletes was very good. There was no significant correlation between energy consumption and protein intake with muscle strength of athletes ($p > 0.05$).

Keywords: Muscle strength, protein intake, athlete

INTRODUCTION

The Indonesian sports team has not yet achieved its maximal achievement. There are many sports teams that have not gained a good reputation in regional, national, even international event. Constitutionally, the Indonesian government has regulated the National Sporting System Constitution. According to Sporting Constitution, one of the sports offshoots managed by the government is the merit sport. Table tennis is one of those merit sports. However, the achievement of tennis table team is relatively declining.

According to data from Tribun Sport, in the 26th SEA Games Indonesia only won 3 bronzes, and it showed that Indonesian team performance declines compared to Indonesian performance in the 25th SEA Games in Laos. In the 25th SEA Games in Laos, Indonesian table tennis team won a silver medal. In the 2015 SEA Games in Singapore, Indonesia also only won a bronze medal [1]. The tendency of declining table tennis achievement is also seen in local and national level. There are several factors which influence the optimal performance in sport. Factors contribute to sport performance such as (1) physic development, (2) technique development, (3) mental development, and (4) the maturity of athletes in achieving their goals [2]. Moreover, the biological aspects contribute to the sport performance are: (1) potential or the basic physical ability including strength, velocity, muscle force, heart muscle working power, lungs, flexibility, pertinence, and healthy exercise; (2) body organ functions including heart working power, breathing system organ, and the sense working power; (3) body structure and shape including height, size, width, and shape of the body; (4) nutrition including adequate amount of foods, food quality fulfills the necessity, and the availability of food variety. The optimal sport performance needs a good physical quality. One of good physical quality criteria is a good arm tendon. A good physical condition requires a balance nutrition intake. A nutritious food will provide good substances the body

needs. Conversely, consuming bad quality of foods will provide the inadequate amount of substances our body needs and the body might lose those necessary substances to function well (Almatsier 2004).

The sport athletes training center has not yet maintained a good dietary for the athletes. Moreover, the training center based in the province or regency. The dietary of athletes often has not been arranged in accordance to a good dietary for the respected sport offshoots. Athlete dietary has not been arranged based on the age and sport category of the athletes. This condition is worsened by the athletes' bad dietary behaviors. Some different sport offshoots which are prepared to participate in various competitions are often given the same quality dietary. Moreover, the dietary for table tennis athletes in regency level; it is worse than those in the province and national level. Tennis table athletes in Pariaman city are no exception in this bad dietary. The training center over there still employs a conventional dietary without considering the age and the category of sport an athlete belongs to. The dietary of athlete only considers whether the foods will satisfy them or not, instead of considering its impact to the quality of athletes' performance. Even on some occasions, the dietary is left to the athletes themselves to choose any foods they want. This research is intended to figure out the quality of nutrient intake for athletes in Pariaman city.

METHODS

The type of this research is descriptive research (Notoatmodjo, 2005). This research design benefits the researcher in term of its simplicity, low-research cost, and not time-consuming or the result can be obtained in the relatively short period of time. This research was taken place at Pariaman city. Data of the research was collected from September to October 2016. Population in this research was all table tennis athletes in Pariaman city. The number of samples was 20 people.

Primary data were the data directly obtained from the respondent such as name, gender, age, weight, height, and dietary. Meanwhile, the secondary data were the population data obtained from the table tennis administrator in Pariaman city. The Instrument employed in this research was the questionnaire to collect the data about respondent identity and the recall of athletes' dietary.

The research was started by filling out the questionnaire about the athletes' identity. After that, the athletes were required to measure their height and weight. The weight was measured without using footwear and the measurement was calibrated. The height was measured without using headscarf nor footwear. The athletes' nutrition, additionally, was measured by comparing the data of athlete's weight and height with the BMI standard in accordance to age and gender (Kemenkes RI, 2011; WHO 2006). To find out the energy and nutrition intake quantitatively and qualitatively. The instruments for measurement of muscle strength used handgrip dynamometer used.

RESULTS AND DISCUSSION

Seventy percent of athletes are men and thirty percent others are women. The research showed that the average energy intake was 2.134 + 231 calorie, the average protein intake was 77.6 + 21.1 gram, the average carbohydrate intake was 370.9 + 49.5 gram per day and the average fat intake was 47.2 + 12.1 gram per day. Furthermore, the amount of average iron intake was 21.0 + 10.5 mg per day, while the average vitamin C intake was 85.0 + 42.6 mg per day. Quantitatively, the energy intake has just reached 76,5% from the total amount of energy needed for one day, carbohydrate intake was 96.3%, the protein intake was 73.7% , the fat intake was 51.8% from that of the requirement by an athlete for one day. The iron intake has reached 139.8% from that of needed by an athlete, but vitamin C intake was still 42.5% of the amount needed by an athlete. Quantitatively, this research showed that the nutrition intake has not yet fulfilled the demand of an athlete for one day. The distribution of respondent's data based on the quality of nutrient and energy intake is tabulated in table 1.

Table 1. Distribution of respondents based on the quality of nutrient intake

Quality of Nutrient Intake	Energy		Carbohydrate		Fat		Protein		Fe		Vitamin C	
	n	%	n	%	n	%	n	%	n	%	n	%
< 100%	19	95	14	75	20	100	19	95	5	25	20	100
≥ 100%	1	5	6	25	0	0	1	5	15	75	0	0
Total	20	100	20	100	20	100	20	100	20	100	20	100

Based on table 1, it is figured out that 95% of athlete's nutrient intake is still below 100% of daily energy intake needed, which shows that the average of daily energy intake has not fulfilled the athlete's needs to do exercise or carry out other physical activities. Energy acts as the catalyst for any physical activities including practicing table tennis that one carry out. The energy intake which has not been fulfilled will be replenished by the deposited energy contained in the muscle glycogen or fat deposit in adipose tissue. The lack of energy consumed will cause the body to have a negative balance, thus it reduces the body weight and damages the tissues our body (Almatsier, 2004). The damages of tissue may reduce the muscle power, thus it lowers the athletes' performance.

Carbohydrate is one of the substances which provide energy for the muscle. The amount of carbohydrate needed by an athlete depends on the intensity, duration, and the type of exercise. The demand of carbohydrate intake for table tennis athlete is 50-60% of the energy intake for one day. The research shows that 25.0% of athletes have consumed enough carbohydrate (>100.0%), however, 75.0% others still consume below 100.0% amount of carbohydrate. Carbohydrates intake below 100.0% of the demand will decrease the number of carbohydrates stored in the muscle and liver. There are still many athletes who consume foods contained carbohydrate below the amount it is needed probably because of less various menu and foods containing carbohydrate consumed by those athletes. Another impact of consuming less carbohydrate is the decreasing deposit of glycogen in muscles and glucose in the blood.

Proteins are important components of the human diet and play an essential role as structural and functional components of living systems. Food proteins provide amino acids (AA) which serve as building blocks of all vital organs, muscles (including heart muscles), hormones and biological fluids such as blood. As the human body is incapable of maintaining reserves of protein, a constant supply of good quality protein is needed to maintain growth and other physiological functions. Insufficient intake of protein, especially during periods of growth and development can affect all organs in the body including the brain, heart, immune system, and other vital organs. Protein quality of foods is, therefore, an important criterion for the provision of adequate nutrition and maintenance of good health (Hardinsyah et al, 1989).

The research showed that generally (95.0%) the quantity of protein intake is still below 100.0%, only 5.0% athletes take enough amount of protein. A study by Jeukendrup and Gleeson (2004) showed a linear relationship between energy intake and protein intake. Tour de France cyclist consumed 12.0% of their daily energy intake (6500 kcal) in the form of protein, and intake easily met the suggested increased requirements (2.5 g/kg b.w. /day). These results suggest that provided the energy intake matches energy expenditure on a daily basis, endurance athletes do not need to supplement their diets with protein. Qualitatively, the essential amino acid consumed has already fulfilled the deal amount (≥100), except tryptophan. There are 5.0% athletes who still consume tryptophan below the ideal amount (<100%, table 2). Tryptophan should be replenished by consuming foods containing a high amount of tryptophan. During exercise with intensity under 70.0% VO_{2max} , there is only a slight change of amino acid in the muscles. This fact portrays that there is no increasing demand for amino acid for athletes who conduct exercise under 70.0% VO_{2max} (Boye et al, 2012).

Iron is a functional component of oxygen transport and energy production in humans and therefore is a critically important micronutrient for sport and exercise performance. Athletes, particularly female athletes participating in endurance sport, are at increased risk of compromised iron status due to heightened iron losses through menstruation and exercise-induced mechanisms associated with endurance activity (Jeukendrup et al, 2004). Mostly the athletes' iron intake has fulfilled their daily need (75.0%). Nevertheless, there still some athletes (25.0%) whose iron intake is still below its ideal number. Iron is the substance needed for forming hemoglobin. Hemoglobin's function is very crucial for carrying oxygen to all tissues. A relative low iron intake in blood might be getting lower during the exercise. The iron substance lost may occur through sweat. Iron lost through sweat may reach up to 0.3 mg iron/L. If an athlete exercises for four days, he might lose 4.0 L solution from his body and 1.2 mg iron (Boye et al, 2012).

The amount of iron consumed will also decrease the consumption of vitamin C is also decreased. The research showed that the athletes' full-vitamin-C intake (100.0%) is still below the athlete's necessity. Vitamin C is the chemical substance which absorbs the iron. Besides, vitamin C deficiency will lead to the damage of tissues in the body because of free radical. The results of research showed that the highest muscle strength was 65 kg and the lowest muscle strength data was 24 kg. The average muscle strength of a table tennis athlete's was 46.0 ± 13.3 kg. The results of research also showed that most of the muscle strength of table tennis athletes was very good (50.0%) and the category was less once (45.5%).

The results of research that showed no significant correlation between nutrient intake (protein, fat, carbohydrate, calcium and phosphor and energy) with muscle strength ($p > 0.05$). Every sport activity requires enough energy for sports activities to be normal without experiencing significant fatigue. According to the Kemenkes RI (2014) energy needs of athlete games including table tennis should come from carbohydrates by 50-60%, 30-35% comes from fat and 12-15% comes from protein. The result of statistical test of this research data shows that there was no significant relationship between energy consumption with athlete muscle strength ($p > 0.05$). An athlete energy requirement a greater than a non-athlete person because of the high activity athletes increases energy expenditure for metabolism, heat and hormone synthesis.

Energy source in the body shaped Adenosine Triphosphate (ATP), ATP is produced from the metabolism of nutrients in the form of carbohydrates, fats, and protein taken from food consumed. When the ATP for activity is sufficient, the excess ATP is stored in the liver and muscle in the form of glycogen, the glycogen in the muscle will be quickly mobilized during muscle contraction (Braun, 2008). Energy requirements for athletes with moderate exercise intensity (2-3 hours / day exercise duration 5-6 times per week) require 50-80 kcal / kg / day (Kreider et al, 2010). In this study the average energy intake of the subject is relatively less when compared with the number of nutritional adequacy for athletes (energy intake) subject $2.134 + 231$ kcal, while the nutritional adequacy rate 2.834 kcal. The energy intake below the sufficiency required will have an effect on the availability of energy for muscle contraction which in turn is related to muscle strength.

The results also showed no relationship between protein intake with muscle strength. But there is a tendency to increase protein intake and muscle strength increases. Food intake, especially protein, is highly influential in muscle mass through changes in protein synthesis, with increased protein intake leading to a positive increase in protein balance leading to increased protein synthesis (Tarnopolsky MA, 1992). Increased protein synthesis slowly results in muscle hypertrophy that ultimately affects muscle strength (Rasmussen, 2000). Increased protein intake should be balanced with adequate energy intake, energy intake will have an impact on the increase in muscle mass. If the energy intake is less then the protein will be broken down as an energy source. When the duration of exercise increases, the protein contributes to maintaining the stability of blood glucose through the process of gluconeogenesis in the liver (ADA, 2000). Athletes with moderate intensity exercise (exercise duration 2-3 hours per day and

exercise frequency 5-6 times per week), need to consume foods consisting of 55-65% carbohydrates (5-8 g / kg / day) in order to keeping the liver and muscle glycogen deposits (Kreider et al, 2010).

The results of data analysis also showed no significant relationship between fat intake with muscle strength (p value > 0.05). Fat is the main source of energy for long-duration sports with low to moderate intensity. According to the Kemenkes RI (2014). Fat requirement ranges from 20 - 45% of total calorie requirement. When consuming less than 20% less fat than the total caloric needs will not give an advantage on physical performance. Similarly, if consuming more fat 45% of total caloric needs then it will be dangerous for athlete health. Although it does not directly play a role in improving performance, certain amounts of fats are still needed by the body for organ function and hormone formation. Fat needs of athletes is recommended 20-45% of total calories required. The need for this fat should be sufficient to form fatty tissue. Excess fat intake causes fat buildup in the adipose tissue that eventually leads to obesity. There has not been a significant relationship between fat intake and muscle strength of table tennis athletes is likely due to lack of energy intake causing fat intake used to provide energy for the entire body metabolism. According to ADA (2000) the recommendation for the adequacy of saturated fatty acids is 10% of energy adequacy, PUFA fatty acid is 10% and MUFA fatty acid is 10%. Athletes should ensure that fat intake is not too low.

CONCLUSIONS AND SUGGESTION

Conclusion

On average, the energy intake has just reached 76.5% from the requirement of nutrient for one day, the protein intake was 73.7%, and fat intake only fulfills 51.8% from that of needed by an athlete. The average iron intake has reached up 139.8%, but the vitamin C intake is still poor, only 42.5% from that of it is requirement. There are 95.0% athletes who consumed protein under the amount needed for daily physical activities, and carbohydrate consumed is still below 75.0%. All athletes (100.0%) still consume vitamin C below the standard it is needed by an athlete. In addition, 95.0% of athletes still consume fat below the amount is required for one day. This research proves that the nutrient demanded by the athlete is still incompatible with athletes' daily activities. There were no significant correlation between nutrient intake (protein, fat, carbohydrate, calcium and phosphor and energy) with muscle strength ($p > 0.05$).

Suggestion

Recommend to athlete to improve food consumption containing nutrition for mainly protein. Suggestion to the sports organizers to improve the quality of athlete menu according to health standards.

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DEVELOPMENT OF MONITORING BOOKS FOR SWIMMING

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Abstract

Objectives: The aim of the study is creating a monitoring book product for the swimmer. That is used as a monitoring media of the progress of students achievement while training swimming in the swimming club. The subject of this study is a swimming coach in the Sleman area.

Methods: The method of this study is Research and Development which uses six ways in the developing research. Previously, the developing of the monitoring book for swimming club need to be identification, developing, validation by a material and media expert, then it was experimented in the small group consisting of five coaches and the big group consisting of fifteen coaches, and the final product The data analysis by percentage quantitative.

Results: The result of the research and development totally explains about the monitoring book media that has the main topic consisting of the material of physical monitor, technique, and also the soft skill of the swimmer. The feasibility material is 80%, while the rate of the media is 81%.

Conclusion: The monitoring book for the swimming is properly to be used in monitoring the development and growth of the swimmer.

Keywords: Development, Monitoring Book, Swimming.

INTRODUCTION

In each kind of sport, both sports for competition and not, has stages of training in the process of coaching that starts from basic skills or basic techniques to advanced techniques. Apart from skill, early-age sports coaching should also be done continuously from an early age.

Sports for young children is not the same as sports for teenagers or adults. The exercise material is more emphasized on how gestures can support the development and growth of the child. One of the sports that can be given for early childhood phase is swimming in which psychologically and technically different course for early childhood compared to adolescent or adult. Different training models are required, at a much earlier multilateral age so that the training programs provided can benefit children's growth and development both physically and psychologically. Focus exercises for early childhood need to monitor the development and growth of learners during practice. In such monitoring, the need for a medium that can effectively assist the trainer in storing information on child growth is necessary. Therefore, it is necessary to hold observations and interviews to find out whether there is a medium that can assist the trainer in monitoring the development and growth of early childhood in swimming practice.

Based on field observation, and student monitoring in micro, PPL and internships, it can be seen that there is no media that can help trainers in monitoring the development of children as well as a medium between the trainer with the child's parents to convey information about the child's growth during exercise since, in reality, many parents are unaware of the child's growth and development during the rehearsals, they are only motivated by the outcome of their child's championship. For early age sports, certainly not the type of sports achievements that highlighted, but rather to how the gestures can support the development and growth of children.

This research and development is intended to design the media to facilitate the trainer in monitoring the development and growth of early childhood as well as a media approach to trainers with parents of children. Media developed in the form of two-dimensional media in the form of

books. The monitoring book is developed with the concept that trainers can easily monitor child development and growth during the training process. Thus the monitoring book is expected to be used as an alternative media in monitoring the development and growth of children.

METHOD

This type of research is research and development (R n D). Research and Development is a product-oriented type of research. In this research, the development is done to produce a product in the form of Monitoring Book which is expected to become a media of information concerning the growth and development of students so that can it can be well monitored.

Media monitoring book in this development is a simple media presented with the material content of the book ranging from the presences, discipline, understanding and benefits swimming, monitoring mastery of swimming techniques, monitoring of child bio motor and child psychological monitoring. This book is designed so that children, parents and trainers can easily see the child's ability development easily and effectively. The results of this development product will be a book with an interesting design and equipped with pictures that support the contents of the book. The use of monitoring book media is quite easy, children, parents and trainers can use it. It is expected that this media can be said to be feasible and effective in its use in the training process.

Procedure of development of this research through several steps, such as: (1) Potential and Problem, that is book media that can effectively provide information at the same time to monitor child development have never been research, (2) Developing of Initial Product by paying attention to goal analysis of the monitoring book, (3) Design Validation and Revision by swimming experts and media experts intended to get input and approval from expert in swimming sports in which the Validation done by experts such as, (4) Test try a small group with 5 trainers who do swimming training in FIK UNY swimming pool and the test results are then revised again, (5) Field trials with 10 trainers and 5 athlete parents from the swimming pools in Sleman, (6) Final Results in the form of products that have received experts' approval.

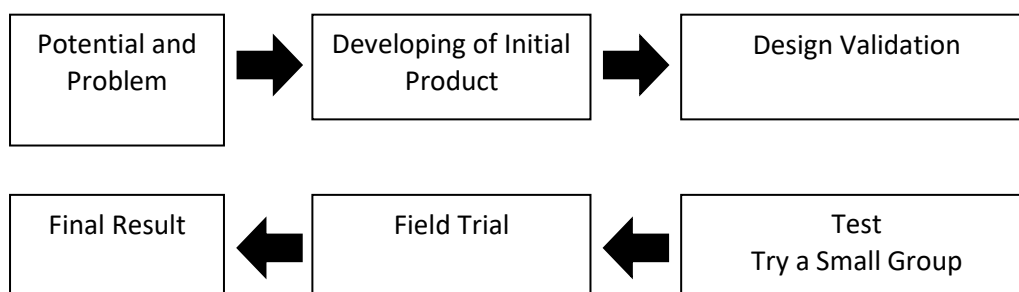


Fig. 1. Development procedure of research

Instruments for collecting data in this development study is to use a questionnaire. Questionnaire is a data collection technique that is done by giving a set of questions or written statement to the respondent to answer (Sugiyono, 2011: 142). The data collection in this development study uses open questionnaires and closed questionnaires, which on the next page is accompanied by a suggestion column. Questionnaires are given to media experts, material experts, and parents of learners. Questionnaire aims to obtain data about the level of media feasibility in the form of numbers as a basis in revising the product.

In order to obtain good results then the validity of the instrument added by using a questionnaire, where the material experts and media experts just fill in accordance with the questions provided. Validation of instruments for material experts and media experts is conducted through consultation and requesting assessment to experts who have expertise on the material to be tested and media criteria. After consultation with the expert because the language is still unclear and less specific so it must be fixed until the item can be considered as valid and can be used. Expert

validation results on the material side obtained 74% feasibility rate and on the media side obtained the feasibility level of 84.5%.

In this research, the formula used to find the reliability of the measuring tool on the development of Monitoring Book for early age pool is with Alpha Cronbach. Reliability is considered satisfactory when the coefficient is 0.754 for small group trials and 0.532 for field trials, but sometimes a coefficient that is not as high as it can still be used together with other scales in a measurement device. After tested the reliability using SPSS 16.0 Version obtained Alpha Cronbach coefficient. In small group experiment obtained coefficient 0,689 and field trial obtained coefficient equal to 0,487. The purpose of the test validity and reliability is for the absolute requirement in research to obtain data from the instrument that has been tested and able to measure the data to be measured.

After the data collected, then the data were clarified into two groups of data, namely qualitative data and quantitative data (Suharsimi Arikunto, 1996: 244). Qualitative data was obtained through expert validation activities and pilot activities in the form of inputs, responses and criticisms and suggestions. Quantitative data in the form of assessment, collected through questionnaires or product trial questionnaires, at the time of trial activities, analyzed by descriptive quantitative analysis. Percentages intended to know the status of something that was presented remain a percentage. After reaching the percentage and then interpreted with sentences that were qualitative. The questionnaire used in this study was a questionnaire assessment or response with a form of "HIGHLY AGREE", "AGREE", "DISAGREE" and "HIGHLY DISAGREE" answers. Based on the number of opinions or answers, then researchers present each

$$P = \frac{\text{Jumlah skor yang diperoleh}}{\text{Jumlah skor maksimal}} \times 100\%$$

Keterangan:
P = Persentase

Having obtained a percentage of that formula, the eligibility of the pool Monitoring Book in this development study was classified into the following four feasibility categories:

RESULTS AND DISCUSSION

Research of "Monitoring Book for Pool Sport" is done with preliminary research in advance through observation as well as interviews some swimming coaches in the pool FIK UNY.

Tabel 1. Feasibility percentage category

No	Skor persentase (%)	Category
1	0% - 25%	not feasible
2	26% - 50%	less feasible
3	51% -75%	quite decent
4	76% -100%	Worthy

RESULT AND DISCUSSION

Parents get very enthusiastic about knowing their child's progress in training, while the trainer needs physical evidence that can be used as a monitoring tool for his or her child's training which can be a medium of information to the child's parent trainer in terms of their child's development during the training process. After doing the initial research and then proceed with making a book monitoring pool and validated by experts in their field, namely a media expert and swimming material experts. This expert review generates the following revisions:

Tabel 2. Result of expert validation

No.	Aspects assessed	score obtained		maximum score	Percentage (%)		Category
		Ahli 1	Ahli 2		Ahli 1	Ahli 2	
1.	Design Feasibility	25	36	40	62,5	87,5	Worthy
2	Feasibility material content	28	35	40	70	90	Worthy

a. Product Validation Data by Media Experts

The media expert as the validator in this research is Dr. Budi Astuti, M.Si who has expertise in media field. The drawing on the exercise is given a description of how to do and how to calculate. Monitor the ability of swimming strokes, and drawing exercises and test forms.

Tabel 3. Data research results books monitoring materials for sports swimming by expert medial

No.	Rated aspect	Scores gained	Maximum Score	Persentase (%)	Category
1.	Design Feasibility	25	40	62,5	quite decent
Total score		25	40	62,5	quite decent

b. Product Validation Data by Expert Material

Expert material as the validator in this study is Sarmanto, S. Pd who has expertise in swimming pool coaching. In stroke exercises, more emphasis on the right to make movements in sports pool. The language written on the image must be present to clarify and inform.

Tabel 4. Data Research Results Books Monitoring Materials For Sports Swimming By Expert Material.

No.	Rated aspect	Scores gained	Maximum Score	Persentase (%)	Category
1.	Feasibility material content	28	40	70	quite decent
Skor Total		28	40	70	quite decent

The stages of the contents of the monitoring book revised twice, after making improvements to the second product, the monitoring book for the swimming sport is declared eligible and allowed to continue the testing phase at Yuso and Dolpin swimming clubs. Feasibility in terms of media is seen from several elements: (1) Physical Aspects (book size, Book thickness, Material paper used), (2) Aspect Design, content form (Image size on content, Arrangement of image on content, , The arrangement of the image on the cover), the writing (the size of the writing on the cover, the arrangement of the writing on the cover, the size of the writing on the content, the writing on the content), and Color (the color of the Book cover, the color of the writing on the cover, the color of the writing on the content), (3) Aspects of Use (Attracting Attention, Helping Monitor Child Development Progress)

Two product revisions were made based on suggestions given by material experts and media experts, as well as on the basis of assessment of the child's parenting during the trial. First Phase Revision

1) Product Revisions Based on Expert's Suggestions Materials, improvements made are on the

- following matters: (a) In swimming stroke exercises more emphasis on effective and efficient in doing the movement. (b) An explanation of the image must be present to clarify and inform.
- 2) Product Revisions Based on the advice of the media expert, the improvements made are as follows: (a) The drawing on the stroke exercise is given a description of how to perform and how to calculate; (b) On stroke monitoring the exercise drawing style and stroke tests are more customized.

Revise the results of second stage validation

- 1) In the second stage of validation the percentage obtained increased from 62.5% to 87.5% of the maximum score. Thus it can be stated that according to the material expert, in the second validation stage of the media "Monitoring Book for Swimming" which developed from the feasibility aspects of the content of the material get the appropriate category.

Table 5. Data from the assessment of monitoring material for swimming pool sport by second stage material experts.

No.	Rated aspect	Scores gained	Maximum Score	Persentase (%)	Category
1.	Feasibility material content	35	40	87,5	Worthy
Skor Total		35	40	87,5	Worthy

- 2) In the second stage of validation percentage obtained increased from 70% to 90% of the maximum score. Thus it can be stated that according to the media expert, in the validation stage of the two media "Book Monitoring for Swimming" which developed from the feasibility aspect of the media content get the category worthy

Tabel 6. Data from the assessment of monitoring material for swimming pool sport by second stage media experts.

No.	Rated aspect	Scores gained	Maximum Score	Persentase (%)	Category
1.	Design Feasibility	36	40	90	Worthy
Skor Total		36	40	90	Worthy

Small Group Trials

A small group trial was conducted on 5 parents of learners at Selobora pool FIK UNY. Small group trials were conducted in 1 session with 20 minutes of time. Conditions during small group trials as a whole can be elaborated as follows: (a) The condition of the explanation of the monitoring book, the parents of the training child is enthusiastic and interested in the content of the monitoring book. (b) Conditions when filling the questionnaire of the child's parent train to pay attention to the explanation on the procedure of filling the questionnaire to be more thorough. With full concentration of parents when filling out the questionnaires, they can understand the questions asked in the questionnaire.

Tabel 7. Result of small group trial questionnaire

No.	Rated aspect	Scores gained	Maximum Score	Persentase (%)	Category
1.	Material	170	200	85	Worthy of implementation
2	Design	176	200	88	Worthy of implementation
Skor Total		346	400	86,5	Worthy of implementation

The result of the questionnaire of the trainers' parents concerning the book media of "Monitoring Book for swimming" shows that for 85% of the material aspect criteria are categorized as feasible and for the description of the book descriptions of 86.5% are categorized as feasible. Total assessment of media feasibility test book "Monitoring Book for Pool Sport" according to the respondents parent child training of 86.5% is categorized as feasible which can be interpreted that the media is worth to be tested to the next stage.

Field Trial

Field trials are conducted to 10 coach and 5athlete parents during the Mayor swimming competition. Trial is done in 1 session with 20 minutes of time. Conditions during the overall field trials may be outlined below: (a) The condition of the monitoring book explanation, the parents of the trainee are interested and there is a content in the monitoring book. (b) Conditions when filling out the questionnaires, parents pay attention to the explanation of the questionnaire procedure, they can properly understand the questions asked.

The result of the questionnaire of the trainers' parents concerning the book media of "Monitoring Book for Swimming" shows that for the material aspect assessment of 80% which is categorized as feasible and for the descriptions of book descriptions of 81% are categorized as feasible. Total assessment of media feasibility test book "Monitoring Book for Swimming" according to the respondents parents training children as much as 80.5% is categorized as feasible which can be interpreted that the media is worth to be tested to the next stage.

Tabel 7. Results field questionnaire

No.	Rated aspect	Scores gained	Maximum Score	Persentase (%)	Category
1.	Material	480	600	80	Worthy of implementation
2.	Design	486	600	81	Worthy of implementation
Skor Total		966	1200	80,5	Worthy of implementation

Data analysis

Based on the data obtained in this study, data analysis is done carefully and researched with the analysis of data obtained this resulted in several things as follows: (1) After the revision and small group testing, it is decided to revise the book because the material of stroke observation (2) Based on small group and field trials showing there are still deficiencies, a revision of the deficiencies to be corrected for the final product of the book (3) Based on small group and field test trials showing the results of the test in category is eligible.

Discussion

Some of the things that need to be addressed in expert / material and media testing and small group and large group trials are as follows:

- 1) Testing to a material expert. The result of the questionnaire to the material expert shows that the level of relevance into the content material used increased from the first stage of the validation to the second stage from 62.5% to 87.5% of the maximum score which means that material in this book media is suitable to be used in monitoring the development of swimming exercise.
- 2) Testing to media experts. The result of questionnaire to media expert shows the level of relevance to the media used increased from the first stage to the second stage from 70% to 90% of the maximum score. Means that material in this book media is suitable to be used in monitoring the development of swimming exercise.
- 3) Testing to the child's parents. Small group trials, Results of parent questionnaires on media "Monitoring Book for Swimming" indicate that for the assessment of material aspects of 85% are categorized as feasible and for the description of the book descriptions of 86, 5% are categorized as feasible. Total assessment of media feasibility test Monitoring Book for Pool Sport according to the respondents' parents of training children is 86.5% is categorized as feasible which means that the media is feasible to be tested to the next stage with larger sample.

Field trials, children's parenting questionnaires survey on the media "Monitoring Book for Swimming" indicate that for the judgment about the material aspect of 80% which is categorized as feasible and for the description of the book descriptions of 81% are categorized as feasible. Total assessment of media feasibility test Monitoring Book for Pool Sport according to the respondents parents of training children is 80.5% is categorized as feasible which can be interpreted that the media is feasible to be tested to the next stage with larger sample.

From the above discussion can be submitted that the media book "Monitoring Book for Swimming" worthy used to monitor the results of swimming exercises in children training. As for the results of the discussion of the parents of children in training is they more easily and carefully monitor the progress of his child in swimming exercises. While according to the trainer, it will help monitor regularly about the achievement of child training and more easily provide information and discussion to parents of children train about the development of children in the process of swimming exercises.

CONCLUSION AND SUGGESTION

The developed Media "Monitoring Book for Swimming" is suitable for monitoring the progress of the pool exercises. Overall media "Monitoring Book for Swimming" gained a feasibility level from the material aspect of 80% and for the description of the book descriptions of 81%..

Suggestions that can be given to trainers can use the book as one of the media that can assist in monitoring the development of child in training for parents can use the book to check the progress of their child in the process of swimming exercises and as a means of discussion with the trainer related to the results of training of the children.

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