

# Development of Burpee and Crocodile Push-up Combination Exercise Model through Arm Muscle Strength and 50 Meters' Freestyle Swimming Speed

Abdul Haris, Harwanto, Hari Karyono  
Physics Program, Postgraduate degree  
PGRI Adibuana University of Surabaya  
Jl Dukuh Menanggal XII/4 Surabaya

**Abstract:-** The background of the research idea come up because one of the results of discussions with fellow trainers when attending regional and national championships, the average complaints expressed were that the development of swimming sports achievements was less than optimal achievement because it was minimal to support training. This study aims to develop existing training movements, namely burpee and crocodile push-ups as a supporting effort in swimming achievement.

In this research, the type of research is research and development methods. The subject of this study is Surabaya Suryanaga swimming athlete. The research instrument used to determine the increasing of athlete performance experienced before being given a combination training of burpee and crocodile push-ups.

Based on the results of the research on the development of teaching materials, the combination of burpee and crocodile push-up, which is very simple, has been completed with some excellent category results. In this research, it is packaged into a movement in the form of a book and supported by a training video. From some of these processes the combination exercise of burpee and crocodile push-ups has several benefits when used for training, including to improve the ability of arm muscles, leg muscles to support the achievements of an athlete.

The results of this study can be concluded that there is the increasing of the ability to swim about 50 meters on freestyle model through combination training of burpee and crocodile push-ups in swimming athletes in Surabaya suryanaga.

**Keywords:-** Exercise, Burpee, Crocodile Phus-up, Swimming.

## I. INTRODUCTION

Exercise in the sports is an iterative and continuous process, both of these items are mental, physical, psychological, and so on. In order to achieve a predetermined goal. According to Sukadiyanto & Muluk (2011: 6). When doing exercises, it is recommended to pay attention to physical conditions. Physical condition is one of the prerequisites indispensable in any attempt to improve the achievements of an athlete, it can even be said to be the basis of the starting point of a beginner sports achievement (Ambarukmi, et al, 2007). Sports achievements both athletes at national and international levels have recently shown increasing, Harsono (2017: 38). The results of joint discussions with fellow trainers who took part in the championship, both regional and national championships, especially in East Java, the average complaints expressed were about the lack of supporting infrastructure for training, so it was necessary to support varied training in order to be not minimal in achieving 2 some competition especially in freestyle swimming speed.

## II. RESEARCH METHOD

In this study, the type of research method consists of the research method and development, according to Seel and Richey in Punaji, (2015), research and development methods means as a process of translating or describing design specifications into physical form or in other sides, development means the process of producing learning materials.

In this research development, the development of teaching materials in the form of a training book, a combination of burpee and crocodile push-ups, because the making of books is accompanied by a sequence of training that has been arranged with various stages as follows: Stage I, making swimming teaching materials in the form of books combination training of burpee and crocodile push-ups to support physical training in freestyle swimming. Phase II, 1. Preparing the material for the validation of the learner design expert and the validation of the swimming material expert, 2. Preparing the measuring instrument in the form of a Surabaya swimming athlete response questionnaire which is then validated by a sports psychologist and a swimming material expert. Phase III,

Implementation phase, in this stage the product in the field is in the Krida Tirta Surabaya Pool.

With these various stages, the training books that have been compiled and printed later can contribute to the physical training methods of swimming athletes, especially freestyle.

To find out the level of attractiveness and usefulness of physical training support products in the freestyle swimming, a series of validations were carried out and then tested on the product and revisions were held. Like several stages, among others, as follows:

- Expert review of swimming material and validation which aims to obtain data in the form of assessments, opinions and suggestions on the appropriateness of the contents of the material and the presentation of the physical training book product of the combination of burpee and crocodile push-up in freestyle swimming that has been developed.
- The expert design review of learning and validation which aims to obtain assessments and comments as well as suggestions for the design, grammar, and graphic products of the developed training combination of burpee and crocodile pushups.
- Individual trials, small groups, medium groups, and large groups, the evaluation of these trials has a goal for swimming athletes namely attracting the material being studied, creating easy of learning, and improving achievement for the athlete himself. Nama Penulis (Asal Instansi) 3
- The flow of research in this research product testing will go through several stages, namely:
  - Expert Test From the product that was made, it is a training guideline for the combination of burpee and crocodile push-up, the guideline is validated by two experts.
  - Learner design expert that is Lecturer of Physical Education learning program of Postgraduate program at UNIPA Surabaya.
  - Expert swimmer, namely swimming lecturer majoring in Physical Education of UNIPA Surabaya.
- Small group test (stage 1 test) The first phase of the training combination of burpee and crocodile push-up to a small group of two athletes were given a questionnaire and then will be revised again if the results of the athlete's response is not good.
- Medium group test (stage 2 test) After a small group trial, training in a combination of burpee and crocodile push-ups was tested on a moderate group, with five athletes who were also given a questionnaire and revised if the athlete's response was poor.
- Large group test (stage 3 test) After the group trials were being conducted, training in combination with the burpee and crocodile push-ups was tested on a large group, with ten athletes who were also given a response questionnaire and revised again if the athlete's response

was poor. Data collected through this research are in the form of data from swimming athletes, data collection using questionnaires developed by researchers, then filled in by swimming athletes marked (√) on the options provided, then it is analyzed by using descriptive statistics whose presentation is in the form of percentage and percentage formula as follows:

**Percentage**

$$= \frac{\sum \text{answer X number of items}}{N \text{ X high score}} \times 100\%$$

Information:

∑ = Amount

N = Number of all items

For giving meaning of the number and makin decision on feasibility of product, he following provisions are used:

Level of Achievement	Qualification	Information
76% - 100%	Very good	No revision
51% - 75%	good	No revision
26% - 50%	less	revised
0% - 25%	bad	revised

Table 1:- Conversion Rate of Achievement with a Scale 4 (Adapted from Arikunto, 2016)

**III. DISCUSSION**

Achievement sports and recreational sports require motivation to increase the confidence of an athlete, so that anxiety that arises both during training and competition can be managed properly so that it does not affect the performance of an athlete, so when physical training and swimming training students need compliance in the training flow, then the implementation of the training will support the success of an athlete.

So the results of research into the development of a very simple combination of burpee and crocodile push-up training materials have been completed with excellent category results. In this research, it is packaged into a movement in the form of a book and supported by a training video. From some of these processes, the combination exercise of burpee and crocodile push-up has several benefits when used for training, including to improve the ability of arm muscles, leg muscles to support the achievements of an athlete.

#### IV. CONCLUSION

- A combination training model for burpee and crocodile push-ups where both are combined in the form of a training model that can be used to increase arm muscle strength and 50 meters freestyle swimming speed which is packaged in a more practical and effective form in physical exercise on land.
- The effectiveness of the results of the research development is valid, this is evidenced by the following results:
  - The training material that has been developed by the researcher makes the training fun can be seen after validation by the material experts, learning design experts, and the results of the validation of the two experts show in the excellent category, this is evidenced by the analysis of training experts with a percentage of 92.5%, continued validation of the questionnaire by product design experts with a percentage of 96%, because on average above 76%, the teaching materials are very good and feasible to implement.
  - In the field trials conducted on swimming athletes in the Krida Tirta swimming pool starting from the results of a questionnaire analysis from a small group that is Nama Penulis (Asal Instansi) 5 91.87%, then the product is worth trying out to a moderate group, the results of a questionnaire analysis from a moderate group that is 92.5% then the product is worth trying out to a large group, the results of a large group questionnaire analysis are 92.87% then the product is declared finished and is suitable for use.

#### REFERENCES

- [1]. Ambarukmi, D.W., Pasurney, P., Sidik, D.Z., Irianto, Djoko P., Dewanti, Rina A., Sunyoto., Sulistiyanto, D., Harahap, M.Y. 2007. *Pelatihan Pelatih Fisik Level 1*. Jakarta. Kemenpora.
- [2]. Aprilia, Tita Arie. 2017. *Pengembangan Pola Gerak Dominan Dalam Pembelajaran Senam Dengan Pendekatan Teknis, Taktis, Dan Kompetitif Pada Siswa Kelas Iv Sd Di Kota Surabaya*. Universitas Negeri Surabaya.
- [3]. Borg & Gall. 1983. *Educational Research An Introduction*. New York. Longman Inc.
- [4]. Haller, David. 2015. *Belajar Renang*. Bandung. Pionir Jaya Bandung.
- [5]. Harris, Nicky. 2007. *Take the 30-Day Burpee Challenge*. Diakses tanggal 5- 13-2018. [www.coachmag.co.uk/fullbody-workouts/6188/take-the-30-dayburpee-challenge](http://www.coachmag.co.uk/fullbody-workouts/6188/take-the-30-dayburpee-challenge).
- [6]. Harsono. 2017. *Kepelatihan Olahraga*. Bandung. PT Remaja Rosdakarya.
- [7]. Kemenpora. 2005. *Panduan Penetapan Parameter Tes Pada Pusat Pendidikan Dan Pelatihan Pelajar Dan Sekolah Khusus Olahragawan*. Jakarta. Asisten Deputi Pengembangan Sumber Daya Manusia Keolahragaan Deputi Peningkatan Prestasi Dan Iptek Olahraga Kementerian Negara Pemuda Dan Olahraga Republik Indonesia.
- [8]. Kusnanik, N.W., Nasution. J., Hartono. S. 2011. *Dasar-Dasar Fisiologi Olahraga*. Surabaya. Unesa University Press.
- [9]. Kencana, Tri P. Candiasa, Imade. Widiartini, Ni Ketut. 2015. *Pengaruh Pelatihan Dengan Pemberian Beban Push-Up Terhadap Hasil Belajar Tolak Peluru Smp Sapta Andika Denpasar*. e-Journal Program Pascasarjana Universitas Pendidikan Ganesha Program Studi Penelitian dan Evaluasi Pendidikan. Vol. 5. No. 1.
- [10]. Maksum, Ali. 2012. *Metodelogi Penelitian*. Surabaya. Unesa University Press Naclerio, Fernando. 2013. *Aplied Periodization: a Methodological Approach*. J. Hum. Sport Exerc. Vol. 8. No. 2. Pp 350-366.
- [11]. Punaji, 2015. *Teknologi Pembelajaran itu Berkaitan Dengan Upaya Peningkatan Efisiensi dan Efektifitas Pembelajaran*.
- [12]. Roesdiyanto., Budiwanto Setyo. 2008. *Dasar– Dasar Kepelatihan Olahraga*. Malang. Laboratorium Ilmu Keolahragaan Universitas Negeri Malang.
- [13]. Sugiyono. 2015. *Metode Penelitian Pendidikan*. Bandung: Alfabeta.
- [14]. Sukadiyanto dan Dangsina Muluk.(2011). *Pengantar Teori dan Metodologi Melatih Fisik*. Bandung. Alfabeta.
- [15]. Thomas, David.G. 2007. *Renang Tingkat Mahir: Langkah-Langkah Menuju Keberhasilan*. Jakarta. PT Raja Grafindo.