

ORIGINAL RESEARCH

The development of the “Exercise at Home” model to increase cardiovascular fitness

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Abstract

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This research aims to produce an exercise model called "home exercise", namely cardio body training to increase cardiovascular endurance. This training model was developed to be used by young women aged 17-25 years in facing the possibility of a decline in physical condition, so that teenagers are finally able to maintain their immune system. This research is a research development that refers to Borg & Gall's research steps which were adapted into eight stages, namely gathering information and field observations, information analysis, initial product design, validation and improvement (product revision), small-scale product trials and revisions, large-scale trials and revisions, creation of the final product. The small-scale test subjects were 15 young women aged 17-25 years from the University of Lampung, the large-scale test subjects were 30 young women aged 17-25 years from the University of Lampung. The instruments used are questionnaires and tests. Expert assessments and research subjects use a questionnaire sheet. The results of the research produced a home exercise model which consists of 3 training models, namely: EL 1, EL 2, and EL 3 exercises for young women aged 17-25 years which are packaged through exercise videos stored in DVD (Digital Video Disc), Soft file, and Guidebook, the level of feasibility of the home exercise model is known through material expert validation evaluations which are in the very good/very feasible category, as well as the results of fitness expert validation evaluations which are included in the very good/very feasible category. At the large-scale trial stage, the home training model is included in the very feasible category.

Introduction

Condition physique can be known through the sports being done in life every day by the community. Activity physique is not only done through exercise sports, therefore activity physique is interpreted as movement produced by the contraction of muscle necessary framework consumption energy and can increase system immune (García-Hermoso et al., 2020). Enhancement immune system can be done in various ways, including by guarding life healthily and pattern getting enough rest, consuming vitamin supplements, and controlling disease accompanying cancer, and diabetes, as well do activity sport in a way regularly (Haskell & Kiernan, 2018). Systematic activity sport there is benefits for fitness physical, and health in body, so sport become influencing activities style life public moment this (Pasari et al., 2020).

The important meaning of sports with the statement scientific physiology is moving in a way aware in accordance with the circumstances and conditions body to reach something successful in activity sports (Onsiri et al., 2020). As it goes time progress era public start understands will importance exercising for health body (Ren et al.,

2020). In general public does exercise in their free time or day holiday with activities such as walking, cycling, and jogging (Garber et al., 2019). Temporary alternative sports are not just on the field, sports activities to increase cardiovascular endurance are carried out at home or also called "exercise at home". Exercise at home is a sports activity that is done at home and is easy to do, such as sports movements, yoga exercises, and cardiovascular exercises, especially for preventing heart disease and its influence on individual characteristics in home exercise programs to increase cardiovascular endurance (Spees et al., 2019). However, the perpetrator's sport still does not enough understand variation exercise become more a lot, measure the right intensity when do move it fitness without exists experience previously (Garber et al., 2019). General in question fitness is the ability of individual in do activities daily without experiencing excessive fatigue so that Still can enjoy time free time (Williams et al., 2019).

There are a number of results studies about Power stand body women namely, researchers Rolnick & Schoenfeld (2020) show results study with category level Power stand teenager woman aged 17-25 years that is as many as 12 (20%) respondents own good category, then there were 24

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(40%) respondents including in category moderate, and 8 (13.3%) categories not enough. So, the results study level fitness Power stand body woman aged 17-25 years group currently. Weterings et al (2021) said exercise aerobics intensity is currently influential to power stand cardiorespiratory. According to American Heart Association standards, A person's normal pulse rate is around 60-100 beats per minute on average, different from pro athletes who have a pulse 40-60 times per minute Because used to with exercise. Then, research data health national show from 2005 to 2019 level of fitness physical public still low and trending sports decreased. According to research, only 17% of the population has a level of fitness classified as physical good.

Based on the results of observations carried out online, the results of physical activity show the level of standing body power in young women aged 17-25 years, the University of Lampung, the Indonesian Technocratic University, and UIN Raden Intan Lampung with an average age of 17-25 years, showing that from 30 There were 21 female teenagers aged 17-25 years which were classified as low with a percentage of 70%. This is a gap that occurs because women aged 17-25 years have free time but do not do heavy physical activity and spend more time resting and lazing around, so the physical activity that teenagers do every day is low activity which causes no increase in body endurance, such as lifting light weights, not doing regular exercise so that physical activity is related to the condition of the body's endurance in young women aged 17-25 years being relatively low. There are still many young women aged 17-25 years who do not understand the stages of exercise, models of exercise movements and the

duration that needs to be done to increase physical activity, especially endurance.

In accordance with the explanation of the research results above, the need for innovation is a necessity that is applied to society; especially women aged 17-25 years for beginner sports players. Aerobic exercise is a whole-body movement exercise that can improve or strengthen the heart muscle, and stabilize the cardiovascular system in maintaining the body's endurance (Bofosa et al., 2022). This research aims to produce an exercise model called "home exercise", namely cardio body training to increase cardiovascular endurance.

Methods

This research method uses research and development which refers to the steps of Borg & Gall which are methods for producing specific products and testing product effectiveness, so this research and development is gradual. In the development research carried out, to produce a model of exercise that can be done at home specifically for young women aged 17-25 years. The product that will be produced through the aerobic exercise model, endurance training will be an effective, efficient and enjoyable model for beginner exercisers and will be explained in video form. This research instrument uses a questionnaire containing a list of statements accompanied by scale marks which are used to provide assessments for expert validation, small-scale trials and large-scale trials. The development procedure for this study was adopted from the Borg & Gall development study below as follows.

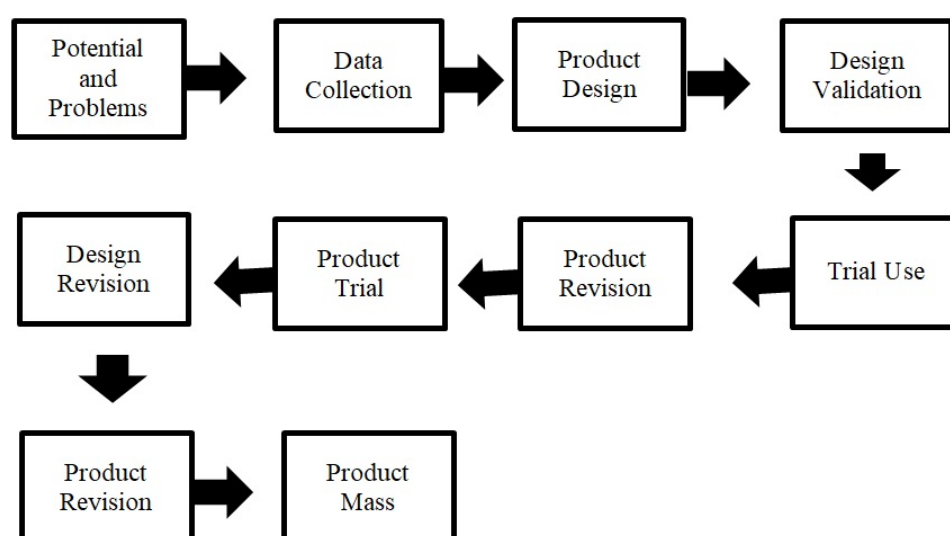


Figure 1. Borg & Gall development research flow.

Results and Discussion

This testing stage is carried out for initial responses and follow-up on the product being developed. This product was developed by young women aged 17-25 years by filling out a movement model questionnaire for beginner exercisers, namely "exercise at home". By collecting data from participant test subjects on a small and large scale according to the questionnaire provided. Questionnaire for test subject respondents, there are 10 questions whose results will be developed into evaluation material for researchers in product improvement. Below are the results of research data from small-scale research subject respondents as follows.

Based on the small-scale trial assessment table above, it shows that the home exercise of the cardio body workout model product in the video, moving EL 1, EL 2, and EL 3 to increase cardiovascular endurance is included in the very good category with a percentage of 85.13%. Thus, research into the development of the "exercise at home" model is worthy of the next stage of large-scale trials. These results are immortalized through videos and photos for observation by expert researchers which are sent via Google Drive online and to be used as evaluation material for input and suggestions. Expert advice at the small-scale trial stage can be shown below regarding the "exercise at

home" model to increase cardiovascular endurance, namely:

- 1) Prof. Suharjana, M.Kes "Carry out DNM measurements on test subjects before and after training"
- 2) Prof. Sumaryanti, M.S "Okay, continue large-scale testing."

The results of the large-scale trial were seen from the number of respondents who participated, namely 30 young women aged 17-25 years. The large-scale testing process carried out is the same as small-scale testing; only the number of respondents is greater. The large-scale trial implementation was carried out in the same place because it was carried out three times a week in accordance with the "exercise at home" video product that was developed, there were three exercise models in the video. After the exercise process was tested, female teenage test subjects aged 17-25 years were asked to fill out a questionnaire to find out the results of the "exercise at home" model product in a wider range. The results of data analysis in large-scale trials are presented in the table below, namely.

The table of large-scale test analysis results shows that the exercise at home model product to increase cardiovascular endurance is included in the very good category with a percentage of 88.07% (Table 2).

Table 1
Results of small scale trials.

No.	Respondent	Results Score	Maximum Score	Percentage (%)	Information
1	BYE	42	50	84	Very good
2	DS	39	50	78	Good
3	M.A	42	50	84	Very good
4	FK	38	50	76	Good
5	MM	48	50	96	Very good
6	AG	45	50	90	Very good
7	RF	47	50	94	Very good
8	AB	40	50	80	Good
9	JWS	47	50	94	Very good
10	P.A	41	50	82	Very good
11	AWA	43	50	86	Very good
12	AP	45	50	90	Very good
13	ICE	48	50	96	Very good
14	KR	41	50	82	Very good
15	LZ	40	50	80	Good
Amount		646	750	85.13%	Very good

Table 2
Results of large scale trials.

No.	Respondent	Results Score	Maximum Score	Percentage (%)	Information
1	BYE	44	50	88	Very good
2	DS	42	50	84	Very good
3	M.A	43	50	86	Very good
4	FK	40	50	80	Good
5	MM	49	50	98	Very good
6	AG	48	50	96	Very good
7	RF	48	50	96	Very good
8	AB	42	50	84	Very good
9	JWS	48	50	96	Very good
10	P.A	43	50	86	Very good
11	AWA	45	50	90	Very good
12	AP	46	50	92	Very good
13	ICE	48	50	96	Very good
14	KR	44	50	88	Very good
15	LZ	43	50	86	Very good
16	KL	42	50	84	Very good
17	OP	48	50	96	Very good
18	A.M	41	50	82	Very good
19	SW	43	50	86	Very good
20	S.G	40	50	80	Very good
21	ID	45	50	90	Good
22	PP	41	50	82	Very good
23	KT	40	50	80	Very good
24	K.S	39	50	78	Good
25	MM	43	50	86	Very good
26	WM	45	50	90	Very good
27	NS	46	50	92	Very good
28	YP	48	50	96	Very good
29	GA	44	50	88	Very good
30	D.P	43	50	86	Very good
Amount		673	1500	88.07%	Very good

The exercise at home model is aerobic exercise, created based on the needs, opinions and suggestions of experts. This video was made in advance and details each stage and implementation of exercise movements, so that exercise at home users find it easier to carry out movements in the exercise section for beginner exercisers. This has gone through a revision stage and has also become an alternative sport specifically for young women aged 17-25 years to increase cardiovascular endurance. The exercise at home model developed can be done 3 times a week for beginner exercisers with a training intensity of 70-85% and duration of 30 minutes. For young women aged 17-25 years, you can do sports with a frequency of 3 to 5 times per week with additional energy in each movement. Based on this, there is a study on cardiovascular endurance in female adolescents,

researchers Han & Won (2022) shows the results of the research with the cardiovascular endurance level category for female adolescents aged 17-25 years, namely 12 (20%) respondents have the good category, then there are 24 (40%) respondents in the medium category, and 8 (13.3%) the not enough.

So, the results of a study on the level of cardiorespiratory endurance of women in the 17-25 year age group currently show a significant increase in maintaining body endurance. Meanwhile, research conducted by Arfanda (2015) with research results stated that to carry out endurance training for beginner exercisers using movements from the easy to the most difficult, it would be better if they were given an aerobic training model that could be developed and

implemented, while remaining controlled, body position according to body anatomy, and aerobic exercise model. So, after developing the exercise at home model, it can be concluded that it is feasible to help young women aged 17-25 years to increase cardiovascular endurance. However, the shortcomings of this exercise at home model and the limitations required make special attention for users. The age classification for exercising at home is only for young women aged 17-25 years. Apart from the material of this product, it is hoped that it will be important in carrying out the exercise process to maintain cardiovascular endurance properly.

Conclusion

Construction of the exercise at home model that has been done finished developed consists from three training models namely Exercise EL 1, EL 2, EL 3 for teenager woman aged 17-25 years with duration every move 30 minutes, using intensity moderate 70-85% MHR done 3 times a day a week, as well packed through exercise videos stored on DVD (Digital Video Disc), soft files, and books guide. Feasibility level of the exercise at home model after pass stages validation expert material including in "Very Good/Decent" category. Meanwhile, expert fitness that has assessed including in category "Very Good/Decent on Trial scale small and big carried out by teenager's woman Age 17-25 years old University of Lampung included in "Very Good/Decent" category.

The development of the exercise at home model has quite an implication Good for perpetrator sport beginner teenager woman aged 17-25 years. Exercise at home can done by beginners teenager woman aged 17-25 years for can increase Power stand cardiovascular. That matter can help perpetrator sport beginner specifically teenager woman aged 17-25 years for can do move exercise at home accordingly with intensity that has been determined namely 70%-85% for reach level good fitness.

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