

Home quarantine - based rhythmic exercises: new fitness assessment and intervention in teaching physical education

Marino A. Garcia^{1ABCDE}, Emerito R. Custodio^{2ABCDE}

¹Cebu Normal University, Philippines

²Cebu Technological University, Philippines

Authors' Contribution: A – Study design; B – Data collection; C – Statistical analysis; D – Manuscript Preparation; E – Funds Collection

Abstract

Background and Study Aim The COVID – 19 pandemic has posed threats on the physical and mental fitness of the people. Thus, the study determined the effectiveness of home quarantine - based rhythmic exercises to the fitness level of the university students in physical education.

Material and Methods University students were the participants of the study. 200 student populations who were taking physical education subject in the year 2020 were considered. Quasi – experimental research design was employed and 96 participants between the age bracket of 18 - 26 (74 females & 22 males) were chosen using simple random sampling in determining the population size of the study. SPSS program was used in the analysis in the obtained data.

Results: The result shown that there is a significant difference between the pre – test and post – test results in the fitness level of the participants in body mass index ($T = -3.482, p < .001$), cardiovascular endurance ($T = -4.193, p < .000$), flexibility ($T = -6.279, p < .000$), muscular endurance ($T = -9.553, p < .000$), and muscular strength ($T = -7.569, p < .000$) performing the home quarantine-based rhythmic exercises.

Conclusions Further, it is concluded that engaging in two (2) months home quarantine – based rhythmic exercises from 30 minutes to 1 hour with moderate to vigorous intensity augment the physical fitness level of an individual. Moreover, it is recommended to put vision accounts in strengthening the inclusion of home quarantine - based rhythmic exercises in teaching physical education either in synchronous and asynchronous in teaching – learning process.

Keywords: home quarantine, fitness assessment, physical components, physical fitness, rhythmic exercise

Introduction

In the midst of global pandemic COVID – 19, the access of fitness areas and facilities for physical activity had been restricted since the Enhanced Community Quarantine (ECQ) is being implemented. Though, the presence of the fitness centers does not always warrant the increase of physical fitness participation vis-à-vis the fitness development of an individual [1]. The pandemic has brought threats in the physical and mental fitness of the people. Being healthy is the ultimate goal of the person's life. There are countless ways on how to become healthy. One of which is the engagement in rhythmic or dance exercise. World Health Organization (WHO) recommends 30 minutes moderate to vigorous physical activity. Engagement in physical activity prevents acquisition of non-communicable diseases such as heart attack, diabetes, hypertension, myocardial infarction among others which these diseases are the leading causes of death in the most part of the whole globe (CDC & WHO).

Being healthy or fit is not easy to acquire for it entails a lot of determination, discipline and preparation to achieve the state of physiologic well - being. This situation even more amplified because of the presence of COVID – 19 which limits the physical movement of the people. It has been presented in most studies that rhythmic exercises have a strong influence in enhancing physical fitness

[2] and applied to prevent and reduce the weakening of the functionality of physical and mental fitness of the people [3]. In this new age, there are number of rhythmic physical fitness trends and programs that enable us to choose on what suits us. Aerobic dance, Dance workout, Yoga, Pilates, Zumba and among others are example of rhythmic exercises that could be considered in home quarantine - based rhythmic exercises. It has been believed that rhythmic movements with the accompaniment of music can be used as therapy for some people in different walks of life [4]. Further, there is evidence that moderate-intensity rhythmic aerobic exercise improves functional capacity and quality of life [5] and has affirmative impact in the ability to balance in either in motion or stationary movements [6].

Home quarantine - based rhythmic exercise is timely and relevant study in this global pandemic since it caters the criteria of not exposing your health from COVID – 19 and not requiring a luxurious and well – structured facility because what is needed is the actuality of the home area for the activity. Further, the study looked into the limits, extents and accuracy of the home quarantine rhythmic - exercises in improving the health-related fitness components of the individual in terms of the body mass index, cardiovascular endurance, flexibility, muscular endurance and muscular strength. With this premise, it can widen the understanding and strengthen the awareness in the context of the functionality of home

quarantine - based rhythmic exercises in the improvement of fitness in general.

Purpose. The aim of the study is to determine the effectiveness of home quarantine – based rhythmic exercises on the health – related fitness components of the university students.

Materials and Methods

Participants

University students were the participants of the study. 200 student populations who were taking physical education subject in the year 2020 were considered. Using simple random sampling, 100 students were selected to participate in the experiment, but it turns out that there were only 96 participants who have completed the study. The students belong to 18 – 26 age groups but most of the participants or 47.90% of them are 19 years of age. This is expected since all of the participants were first year students. Further, since the implementation of K to 12 in the educational system in the Philippines, this age bracket from 18 to 20 years of age is expected in the tertiary level. While most of the participants are female this corresponds to 74 or 77% of the total sample population and 22 or 23% for male.

Talking about the heart rates of the participants, the resting heart rate (RHR) mean of 74.52bpm (normal); target heart rates (THR) mean of 161.54bpm (normal); and maximum heart rates (MHR) mean of 199.57bpm (normal). American Heart Association (AHA) presented that the normal resting adult human heart rate is 60 – 100bpm [7]. Further, the mean weight of the participants is 47.71 which means that most of the participants are neither too fat nor thin based on their age bracket. While the mean height of the participants is 155.93 cm as interpreted short based from British-American standard. Men tend to want a woman no taller than 6 feet, while women want a man no shorter than 5 feet 4 inches. Further, according to the study that ideal height for man is 180.3 cm (5’11”) and for the women is 167.6 cm (5’6”) [8].

Research Design

The study used quasi – experimental research design to determine the effectiveness of home quarantine - based rhythmic exercises in the improvement of one’s fitness such as the BMI, cardiovascular endurance, flexibility, muscular endurance and muscular strength. The participants were asked to undergo fitness level test as the ground – based data for reference and served as the pre -

test. Adopting the standard instrument from the Revised Physical Fitness Test (DepEd Order 034 s. 2019) [9] was used in testing the fitness level of the participants. After the pre – test, the participants were asked to engage in two (2) months home quarantine - based rhythmic exercises. Within 2 months, they were asked to spend at least 30 minutes to 1 hour rhythmic exercises everyday wherein they will be the one to determine what time in the day they will do their rhythmic exercises. However, Sunday will be considered as their rest day because recovery is very important in giving time for the muscles to grow and relax. Then, after the 2 months exposure to home quarantine – based rhythmic exercises, the participants were asked to take their fitness level post - test using the same instrument as stated above.

Statistical Analysis

All data from the pre – test to post – test results were sent online. Documentation and online observation were maximized to ensure reliability and validity of the results. In the analysis of data, percentage, mean, standard deviation and T – Test were used. Percentage, mean and standard deviation were used to describe the profile, pre – test and post – test results of the participants. On the other hand, T – Test was used to determine the level of significant difference of the two means which are the pre – test and post – test physical fitness results of the participants. Steps and processes for the ethical considerations were followed. Informed consent for the participants was clearly emphasized. The preservation of the anonymity and confidentiality of the participants were done by not illuminating their names, individuality and personality in the data collection, analysis, presenting and reporting of the study finding using Statistical Package for Social Sciences (SPSS) edition 22.

Results

Below are the tables and results of the experiment of the participants in engaging in home quarantine – based rhythmic exercises in 2 months.

The table presents the pre - test and post – tests results of the participants (tabl. 1). Before the start of the experiment, the participants were mostly normal in terms of BMI with 60.42% and with the mean of 19.45. In the other hand, after the experiment or post – test the BMI result of the participants increases to 69.79% and with the mean of 19.65.

Table 1. Body Mass Index

BMI	Pre – Test					Post – Test				
	f	%	SD	Mean	Inter	f	%	SD	Mean	Inter
Underweight	35	36.46				26	27.08			
Normal	58	60.42				67	69.79			
Overweight	2	2.08				2	2.08			
Obesity	1	1.04	2.70	19.45	Normal	1	1.04	2.58	19.65	Normal
Total	96	100				96	100			

Looking at the pre – test result of the cardiovascular endurance fitness, it yielded quite positive results with more than half of the participants (59.38%) are having a good condition in their heart and lungs and with the mean of 104.18bpm (tabl. 2). While in the post – test result, there is a decrease of 11.49% from the pre – test result and with the mean of 113.90bpm.

The table shows the result of the pre – test and post – test of the participants in flexibility (tabl. 3). It presented that 82 or 85.42% of the participants were not flexible with the mean of 31.27 and standard deviation of 16.34 which is interpreted as poor in pre - test. While the post – test results provide an increase of number of participants from 12 (pre-test) to 29 who are now flexible with the mean of 43.74 and standard deviation of 23.70 still interpreted as poor.

In the pre – test result, the table shows that 71 or 73.97% of the participants fall below average in terms of their muscular endurance with a mean of 9.33 and standard deviation of 6.57 (tabl 4). This fact supports that participants must work hard on their muscular endurance fitness. The result strongly signifies that majority of them lack muscular endurance in performing physical activity (tabl. 4). In the other hand, muscular endurance post - test result is the most overwhelming result since there is a noticeable increase of the participants moving towards average to excellent with 65 Or 67.72% of the total population of the study. Further, there were 3 or 3.13% who got excellent results compared to the 0% from the pre – test result. Furthermore, the mean of 15.74 and standard deviation of 8.20 signify that the participants did improve their muscular endurance after two (2) month of home quarantine – based rhythmic exercises.

Table 2. Cardiovascular Endurance

CE	Pre – Test					Post – Test				
	F	%	SD	Mean	Inter	f	%	SD	Mean	Inter
Excellent	15	15.63				10	10.42			
Above Average	10	10.42				10	10.42			
Average	32	33.33				26	27.08			
Below Average	17	17.71	21.77	104.18	Average	21	21.88	25.45	113.90	Average
Poor	22	22.92				28	29.17			
Total	96	100				96	100			

Table 3. Flexibility

Flexibility	Pre – Test					Post – Test				
	f	%	SD	Mean	Inter	f	%	SD	Mean	Inter
Very Good	5	5.21				20	20.83			
Good	6	6.25				6	6.25			
Average	1	1.04				3	3.13			
Fair	2	2.08	16.34	31.27	Poor	7	7.29	23.70	43.74	Poor
Poor	82	85.42				60	62.5			
Total	96	100				96	100			

Table 4. Muscular Endurance

ME	Pre – Test					Post – Test				
	f	%	SD	Mean	Inter	f	%	SD	Mean	Inter
Excellent	0	0.00				3	3.13			
Good	4	4.17				6	6.25			
Above Average	1	1.04				15	15.63			
Average	20	20.83				41	42.71			
Below Average	39	40.63	6.57	9.33	Below Average	24	25.00	8.20	15.74	Average
Poor	29	30.21				7	7.29			
Very Poor	3	3.13				0	0.00			
Total	96	100				96	100			

Table 5. Muscular Strength

MS	Pre – Test					Post – Test				
	F	%	SD	Mean	Inter	f	%	SD	Mean	Inter
Above Average	2	2.08				11	11.46			
Average	0	0.00				1	1.04			
Below Average	1	1.04	6.53	10.29	Poor	6	6.25	10.76	16.97	Poor
Poor	93	96.88				78	81.25			
Total	96	100				96	100			

Table 6. Level of Significant Difference

Fitness Test (Pre – Test & Post Test)	Mean	Standard Deviation	T Value	P Value (2-tailed)	Interpretation
Body Mass Index	-.197	.555	-3.482	.001	Significant
Cardiovascular Endurance	-9.719	22.709	-4.193	.000	Significant
Flexibility	-12.064	18.824	-6.279	.000	Significant
Muscular Endurance	-6.406	6.570	-9.553	.000	Significant
Muscular Strength	-6.677	8.643	-7.569	.000	Significant

Significant Difference $\alpha=0.05$

In the pre – test result, the table shows that 93 or 96.88% of the participants are poor in terms of muscular strength with a mean of 10.29 and a standard deviation of 6.53 (tabl. 5). Only 2 or 2.08% of the participants who got positive results in the test. While the post – test result of the muscular strength fitness of the participants presents that there is an increase of 12.50% with a mean of 16,79 and standard deviation of 10.76 still interpreted as poor.

The table presents the significance difference between the pre – test and post – test results physical fitness level of the participants (tabl. 6). This part explains the limits, extents and accuracy of the fitness improvement of the participants in terms of body mass index, cardiovascular endurance, flexibility, muscular strength and muscular endurance. The engagement of the participants in two (2) months home quarantine-based rhythmic exercises (aerobics dance exercise, dance workout, pilates, yoga, zumba) present a significant improvement in their fitness level in body mass index ($T= -3.482, p < .001$), cardiovascular endurance ($T= -4.193, p < .000$), flexibility ($T= -.6.279, p < .000$), muscular endurance ($T= -9.553, p < .000$), and muscular strength ($T= -7.569, p < .000$). Time for doing such physical activity (from moderate to vigorous) is from 30 minutes to 1 hour.

Discussions

Dance as an activity bids the involvement of body senses and strengthens self-expression through music and applies different aspects of personality [10] and it reduces fatigue and increases the levels of psychological stimulation during exercise [11]. This means that even in this pandemic time, home quarantine – based rhythmic exercise is one of the best weapons to fight against boredom, mental stress and inactivity of the people. Further, one of the studies explains that dancing amplifies the physical fitness of the individual [12]. Thus, this

study served to be the validation to the different studies that engaging in physical activity in the form of rhythmic exercise either in home quarantine – based or in posh exercise facilities increases the physical fitness level as long as consistency and perseverance will be counted in the exercise program.

Indeed, this study has proven that engaging in home quarantine – based rhythmic activities in two months amplifies the fitness level of an individual. One of the components being tested in the study is the body mass index (BMI). There were several studies that explain the association of body mass index (BMI) to mortality rate and causes of death in the entire world [13]. Increasing results in the BMI of participants were noticeable after the exposure of the two months home quarantine - based rhythmic exercises in the study. Hence, decreasing the number of participants that fall in the underweight category. Having a normal body mass index (BMI), means that it is easier for the individual to perform in any physical activity [14]. Thus, the need to shape the body is as the same as extending the movement capacity of the body which in a way increases the mortality rate and provides several advantages such as pre-matured death [15].

The cardiovascular endurance defines as the capacity of the heart and lungs to sustain during a physical activity was the second fitness component tested in the study. Before performing the test, the participants were asked to get their resting heart rate to know their present condition as shown in the respondents ‘profile. Thus, those who are with higher BMI, poorer metabolic control, and lower amounts of physical activity tended to have lower levels of cardiovascular endurance (CE) [16]. The decreasing result of the cardiovascular endurance of the participants is indeed surprising [17]. It is common knowledge that exercise (specifically dancing) increases cardiac output

and blood pressure. However, individuals adapted to exercise show lower resting heart rate and cardiac hypertrophy [17]. Hence, engaging in physical activity either in moderate or vigorous physical activity makes the heart and lungs healthy [18, 19, 20], reduce blood pressure [21], and augment cardiac function [22, 23].

Another test is the flexibility which defines as the range of movement in performing physical activity. The participants were asked to perform sit and reach [24, 25] to get their flexibility fitness level before and after the engagement in two months of home quarantine – based rhythmic exercises. Less is known about the role of flexibility in the maintenance or improvement of functional abilities [26] but this study somehow explains the importance and functionality of flexibility specially in the context of home quarantine - based rhythmic exercises. Though, at the start of the test, it was obvious that the participants were not flexible. However, a slight increase in flexibility have seen after the exposure of the home quarantine – based rhythmic exercises but still the outcomes does not conform to the standard level of flexibility expected from the study. In fact, there are several studies that questioned the value of flexibility in terms of muscle cramps, prevention of injury and even increase in the fitness performance of the people [27, 28]. At the brighter side, there is a push movement of flexibility among the participants worthy of putting in record to stimulate encouragement of the people to engage in home quarantine – based rhythmic exercises as options in maintaining physical health.

Muscular endurance is another fitness component being tested in the study that defines as the ability to perform a specific muscular action for a prolonged period. Before the test, it was found out that the muscular condition of the participants was below average with the assumption that most of the participants were females (77.1%). Surprisingly, after the engagement in two months home quarantine – based rhythmic exercises of the participants, there is a drastic change of result to average which conforms to the standard of fitness. However, muscular strength as the last component tested in this study and

work hand in hand with muscular endurance [29, 30]. Several studies have seen the fundamental criteria of relationship in testing the sport performance in training. In such a way one observes less improvement after the test [29, 30]. Even with the slightest improvement among the other fitness components, still the slight increase is significant and can prove that the intervention is effective. Hence, having good muscular fitness increases the chance of better cardio metabolic effect [31] however losing function in daily living activities is related to the reduction of muscular strength and muscular mass [32]. Aptly, building the muscular endurance and strength solidifies the physical fitness of an individual.

In concurrent, there is a significant difference between pre – test and post – test results in the improvement of the fitness level of the participants. This is indeed noteworthy since engaging in home quarantine – based rhythmic exercises in times of the global pandemic in about 30 minutes to 1 hour with moderate to vigorous intensity is effective in enhancing the health-related fitness components of the individual.

Conclusions

Physical activity either in sports, recreation and most specifically home quarantine – based rhythmic exercises stimulate in the improvement of one's health. It is in the conclusion of this study that engaging in two (2) months duration and with moderate to vigorous home quarantine – based rhythmic exercises as an intervention augments the physical fitness level of an individual. Moreover, home quarantine –based rhythmic exercises must be used as one of the synchronous or asynchronous assessments and interventions in teaching physical education in this global pandemic.

Financial support

There is no financial support.

Conflict of interests

The authors state that there is no conflict of interest

References

1. Garcia MA, Bojos MT, Canillas JA. The emergent behavior in the engagement of physical activity in fitness centers. *Journal of Physical Education Research*, 2018;5(2):51–56.
2. Kang H, Kim S, Lee B. Effects of rhythmic exercise on physical fitness and MVAS in older females. *Journal of Kinesiology*, 2013; 1–14.
3. Han J, Lee J, Park J, Lee S, Kang H. Effect of a 12 Week-Aerobic Exercise Program on Physical Fitness, Depression, and Cognitive Function in the Elderly. *Exercisescience*, 2014;23:375–85. <https://doi.org/10.15857/ksep.2014.23.4.375>
4. de Dreu MJ, van der Wilk ASD, Poppe E, Kwakkel G, van Wegen EEH. Rehabilitation, exercise therapy and music in patients with Parkinson's disease: a meta-analysis of the effects of music-based movement therapy on walking ability, balance and quality of life. *Parkinsonism & Related Disorders*, 2012;18:S114–9. [https://doi.org/10.1016/S1353-8020\(11\)70036-0](https://doi.org/10.1016/S1353-8020(11)70036-0).
5. Kokubo T, Tajima A, Miyazawa A, Maruyama Y. Validity of the Low-Impact Dance for exercise-based cardiac rehabilitation program. *Phys Ther Res*, 2018;21:9–15. <https://doi.org/10.1298/ptr.E9929>
6. Kwon I-H, Song J-Y, Kim D-Y, Son J-Y, Shim Y-J, Shin W-S. Comparison of rhythmic and non-rhythmic aerobic exercises on depression and balance in the elderly. *Physical Therapy Rehabilitation Science*, 2017;6:146–51. <https://doi.org/10.14474/ptrs.2017.6.3.146>
7. *All About Heart Rate (Pulse)*. [Internet]. 2021. [cited 2021 Jan 02]. Available from: <https://www.heart.org/en/health-topics/high-blood-pressure/the-facts-about-high-blood-pressure/all-about-heart-rate-pulse>
8. *The ideal height: 5'6" for a woman, 5'11" for a man*. [Internet]. 2021. [cited 2021 Jan 02]. Available from: <https://yougov.co.uk/topics/politics/articles-reports/2014/07/11/ideal-height-56-woman-511-man>

9. Revised Physical Fitness Test Manual. [Internet]. 2019. [cited 2021 Jan 02]. Available from: https://www.deped.gov.ph/wp-content/uploads/2019/12/DO_s2019_034.pdf
10. Kaufmann K. Movement as a Metaphor: How Persistence, the Tao, and the Wisdom of the Ostrich Helped Build School Dance Programs. *Journal of Physical Education, Recreation & Dance*, 2011;82:37–45. <https://doi.org/10.1080/07303084.2011.10598627>
11. Jing L, Xudong W. Evaluation on the effects of relaxing music on the recovery from aerobic exercise-induced fatigue. *J Sports Med Phys Fitness*, 2008;48:102–6.
12. Douka S, Zilidou VI, Lilou O, Manou V. Traditional Dance Improves the Physical Fitness and Well-Being of the Elderly. *Front Aging Neurosci*, 2019;11:75. <https://doi.org/10.3389/fnagi.2019.00075>
13. Zheng W, McLerran DF, Rolland B. Association between body-mass index and risk of death in more than 1 million Asians. *N Engl J Med*. 2011;364:719–729. <https://doi.org/10.1056/NEJMoa1010679>
14. Chen X, Cui J, Zhang Y, Peng W. The association between BMI and health-related physical fitness among Chinese college students: a cross-sectional study. *BMC Public Health*, 2020;20:444. <https://doi.org/10.1186/s12889-020-08517-8>
15. Myers J, Kaykha A, George S, Abella J, Zaheer N, Lear S, et al. Fitness versus physical activity patterns in predicting mortality in men. *The American Journal of Medicine*, 2004;117:912–8. <https://doi.org/10.1016/j.amjmed.2004.06.047>
16. Faulkner MS, Quinn L, Rimmer JH, Rich BH. Cardiovascular Endurance and Heart Rate Variability in Adolescents With Type 1 or Type 2 Diabetes. *Biological Research For Nursing*, 2005;7:16–29. <https://doi.org/10.1177/1099800405275202>
17. Nystoriak MA, Bhatnagar A. Cardiovascular Effects and Benefits of Exercise. *Front Cardiovasc Med*, 2018;5:135. <https://doi.org/10.3389/fcvm.2018.00135>
18. Warburton DER, Gledhill N, Quinney A. Musculoskeletal Fitness and Health. *Can J Appl Physiol*, 2001;26:217–37. <https://doi.org/10.1139/h01-013>
19. Warburton DER, Gledhill N, Quinney A. The Effects of Changes in Musculoskeletal Fitness on Health. *Can J Appl Physiol*, 2001;26:161–216. <https://doi.org/10.1139/h01-012>
20. Seidell JC, Cigolini M, Deslypere J-P, Charzewska J, Ellsinger B-M, Cruz A. Body Fat Distribution in Relation to Physical Activity and Smoking Habits in 38-year-old European Men. *American Journal of Epidemiology*, 1991;133:257–65. <https://doi.org/10.1093/oxfordjournals.aje.a115870>
21. Blair SN. Physical fitness and incidence of hypertension in healthy normotensive men and women. *JAMA. The Journal of the American Medical Association*, 1984;252:487–90. <https://doi.org/10.1001/jama.252.4.487>
22. Paffenbarger RS, Wing AL, Hyde RT, Jung DL. Physical activity and incidence of hypertension in college alumni. *American Journal of Epidemiology*, 1983;117:245–57. <https://doi.org/10.1093/oxfordjournals.aje.a113537>
23. Warburton DER, Gledhill N, Jamnik VK, Krip B, Card N. Induced hypervolemia, cardiac function, &OV0312;O2max, and performance of elite cyclists: *Medicine & Science in Sports & Exercise*, 1999;31:800–8. <https://doi.org/10.1097/00005768-199906000-00007>
24. Klein DA, Stone WJ, Phillips WT, Gangi J, Hartman S. PNF Training and Physical Function in Assisted-Living Older Adults. *Journal of Aging and Physical Activity*, 2002;10:476–88. <https://doi.org/10.1123/japa.10.4.476>
25. King AC, Pruitt LA, Phillips W, Oka R, Rodenburg A, Haskell WL. Comparative effects of two physical activity programs on measured and perceived physical functioning and other health-related quality of life outcomes in older adults. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, 2000;55:M74–83. <https://doi.org/10.1093/gerona/55.2.M74>
26. Stathokostas L, Little RMD, Vandervoort AA, Paterson DH. Flexibility Training and Functional Ability in Older Adults: A Systematic Review. *Journal of Aging Research*, 2012;2012:1–30. <https://doi.org/10.1155/2012/306818>
27. Thacker SB, Gilchrist J, Stroup DF, Kimsey CD. The Impact of Stretching on Sports Injury Risk: A Systematic Review of the Literature. *Medicine & Science in Sports & Exercise*, 2004;36:371–8. <https://doi.org/10.1249/01.MSS.0000117134.83018.F7>
28. Leibesman JL, Cafarelli E. Physiology of range of motion in human joints: a critical review. *Critical Reviews in Physical and Rehabilitation Medicine*, 1994;6(2):131–160.
29. Baker D. Comparison of Upper-Body Strength and Power Between Professional and College-Aged Rugby League Players. *Journal of Strength and Conditioning Research*, 2001;15:30–5. <https://doi.org/10.1519/00124278-200102000-00006>
30. Naclerio AF, Jimenez GA, Forte FD, Benito PP. Relationship between the 1RM load and strength applied or power produced during a progressive test in the bench press exercise with free weight, in powerlifters. *APUNTS*. 2006;84:45–52. [in Spanish].
31. Ramírez-Vélez R, Correa-Bautista JE, Lobelo F, Izquierdo M, Alonso-Martínez A, Rodríguez-Rodríguez F, et al. High muscular fitness has a powerful protective cardiometabolic effect in adults: influence of weight status. *BMC Public Health*, 2016;16:1012. <https://doi.org/10.1186/s12889-016-3678-5>
32. Skelton DA, McLaughlin AW. Training Functional Ability in Old Age. *Physiotherapy*, 1996;82:159–67. [https://doi.org/10.1016/S0031-9406\(05\)66916-7](https://doi.org/10.1016/S0031-9406(05)66916-7)

Information about the authors:

Marino A. Garcia; (Corresponding Author); <https://orcid.org/0000-0001-9651-8979>; garciam@cnu.edu.ph; Cebu Normal University; Philippines.

Emerito R. Custodio; <https://orcid.org/0000-0002-2902-3121>; emeritocustodio67@gmail.com; Cebu Technological University; Philippines.

Cite this article as:

Garcia MA, Custodio ER. Home quarantine - based rhythmic exercises: new fitness assessment and intervention in teaching physical education. *Physical Education of Students*, 2021;25(1):51–57.
<https://doi.org/10.15561/20755279.2021.0107>

This is an Open Access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited
<http://creativecommons.org/licenses/by/4.0/deed.en>

Received: 12.01.2021

Accepted: 22.02.2021; Published: 26.02.2021