



**Research Article**

## **The Development of Yoko Techî Training Method to Increase the Movement Function and Decrease the Anxiety Level on Pre-Elderly and Elderly Woman**

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**Abstract**

The purpose of this research is to create a training method to increase the movement function and decrease the anxiety level on pre-elderly and elderly women. The method which is a combination between yoga, makko ho, pilates and tai chi called as YOKO TECHI. It is supposed to increase the movement function while decreasing the anxiety level on pre-elderly and elderly women. This research aims to search and improve this new technique. In addition to interview methods, large and small tests were conducted for observation. The effectiveness test was conducted via pre-experiment with one-group pretest-posttest design. This research was conducted on elderly posyandu Amrih Sehat Jatijajar village, Bergas sub-district, Semarang. It is followed by 10 subjects for small, 15 subjects for large scale test to get the product effectiveness test. YOKO TECHI Training treatment was done three times in a week for six weeks. Data analysis was conducted via t-test and assisted by SPSS. All YOKO TECHI movements can increase the movement function on pre-elderly and elderly women while decreasing the anxiety level with the shoulder movement function enhancement of 17.08%, on the back there is an enhancement from movement function of 22.45%, on lower extremity there is an enhancement for movement function of 21.38% whereas on anxiety level there is 10.93% decreasing. The development of yoko techi training method can increase the movement function and decrease the anxiety level on pre-elderly and elderly woman.

**Keywords:** Movement function, Anxiety, Elderly, Yoko techi training, Pre-elderly

## **Yaşlı Kadınlarda Hareket Kabiliyetini Arttırmak ve Kaygı Düzeyini Azaltmak Amaçlı Yoko Techî Antrenmen Metodunun Geliştirilmesi**

**Öz**

Bu araştırmanın amacı erken yaşlılık ve yaşlılık dönemindeki kadınlarda hareket kabiliyetini arttırmak ve kaygıyı azaltmak amaçlı yoko techi antrenman metodunun geliştirilmesidir. Yoko Techî, yoga, makko ho, pilates ve tai chi arasında bir kombinasyondur. Erken yaşlılık ve yaşlılık döneminde kaygı seviyesini azalırken hareket fonksiyonlarında bir artış olmalıdır. Bu araştırma, bu yeni tekniği araştırmayı ve geliştirmeyi amaçlamaktadır. Görüşme yöntemlerine ek olarak, gözlem için irili ufaklı testler yapıldı. Etkililik testi, bir grup ön test-son test tasarımı ile ön deney yapılarak gerçekleştirildi. Bu araştırma, yaşlı Posyandu Amrih Sehat Jatijajar köyünde, Bergas semtinde, Semarang'ta yürütülmüştür. Ürün etkinlik testini almak için küçükler için 10 denek grubu, büyük ölçekler için 15 denek gurubu ile çalışıldı. YOKO TECHI Eğitim tedavisi altı hafta boyunca haftada üç kez yapıldı. Veri analizi SPSS tarafından destekli t testi ile yapıldı. Tüm YOKO TECHI hareketleri, erken yaşlı ve yaşlı kadınlarda hareket işlevini artırırken, omuz hareketi işlevinde % 17.08 artış, arka kısımda % 22.45 oranında hareket işlevinde artış ve kaygı seviyesinde azalma tespit edilmiştir. Alt ekstremitede % 21,38 oranında hareket fonksiyonu için bir gelişme gözlemlenirken, kaygı düzeyinde % 10,93 oranında azalma görüldü. Yoko techi eğitim yönteminin geliştirilmesi, hareket işlevini artırabilir ve erken yaşlılık dönemi ile yaşlılık dönemindeki kadınlarda kaygı seviyesini azaltabilir.

**Anahtar Kelimeler:** Hareket fonksiyonu, Kaygı, Yaşlılık, Yoko techi eğitimi, Erken yaşlılık.

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## INTRODUCTION

Along with health of every person or community, and the complete of health facility affected to the increase of total people with age of pre-elderly and elderly. According to the elderly population statistic data, Indonesian health ministry 2017 stated that the proportion of elderly around 23.66 million people or (9.03%) from the total of the population. Percentage of elderly woman is higher which are 9.53% rather than man percentage which is only 8.54%. Meanwhile with the proportion of productive population 10-59 years is bigger compared to the other group age shown that Indonesia is a country with headed old population structure. Projection in 2020 estimated reaching 11.34% population or around 28.5 million people.

Pre-elderly is a step to enter the age of elderly, and elderly is a final part from the life cycle. Scientifically human cannot escape from the aging process. Aging process brought the impact of the problem on pre-elderly and elderly. On the physics there is a decrease of aerobic capacity, decrease of power and balance. On health aspect more than 64% elderly complained about their health. One in four elderly got sick within last a month (Elderly population statistic, BPS 2014). Physically there will be continually aging process on pre-elderly and elderly which indicated with the decrease of limb function which resulted in the escalation of vulnerability on elderly's body. As for the decrease of limb function consisted of the decrease of joints flexibility, muscles power, balance and aerobic capability so that it can decrease bodily function that resulted in the problem of movements also function on pre-elderly and elderly.

The decrease of movement function occurs on muscle and depletion of cartilage around the joints, which marked with the stiffness and the sore on joints especially when it moved so that the movements are limited. According to the survey towards 25 pre-elderly and elderly found that 92% from those pre-elderly and elderly had a problem with joints and dominated with 52% of knee joints, followed by 27% hip joints, 15% shoulder joints and

6% of ankle joints problem. This thing is commonly happened on pre-elderly and elderly because physiologically will experience stiffness, sore, limitations of movements, and the disturbed of daily activity (Pudjiastuti & Utomo, 2003: 9).

Beside that form psychology terms, anxiety often came to the elderly and especially attack elder woman more rather than elder man. That thing affected by the decrease of physic, health, knowledge level, felt unaccepted, the occurrence of mental disorder and etc. Retno, et. al. (2013) stated that elderly who experience anxiety tend to experience decrease of their independence. Interview result done to the 45 above years old woman in elderly posyandu Amrih Sehat, got 10 in 15 people experience the anxiety started from light anxiety to severe anxiety with the percentage of light anxiety 33.3%, moderate anxiety 26.6% and severe anxiety 6%. It was also found the data which not really different according to the research result by Amurwaningsih (2010: 3), that is most of the subject experience the anxiety with the percentage of 48% and majority suffered by woman subject (58%) with the detail of light anxiety 2%, moderate anxiety 36% and severe anxiety 20%.

Nowadays there are so many groups of elderly doing tai chi training, also several fitness clubs providing special class of pilates and yoga. Basically tai chi movements were more dominant moving upper body and offset with lower body movements. Pilates movements focus on core stability which involving back bone, stomach and hip (middle body parts), also makko ho which emphasize to the flow of Qi or body meridian spot that exist in human body organ, while yoga movements tend to activate all body parts. With the different focuses, makes the researchers wanted to collaborating those four training forms through development of yoga, makko, pilates and tai chi training method into one training method that within it can train aerobic, power, flexibility and balance capability so that it can enhance the movement function and decrease the anxiety for pre-elderly and elderly woman.

Research from Brisbon & Lowery, 2009; Wyshake & Sklar 2009 shown that yoga can increase happiness, reduce stress anxiety and depression. This thing is also strengthen by the research result of Farinatti et al. (2014), which is stated that flexibility in ankle, knee, hip, back bone, wrist, elbow and shoulder also total flexibility (Flexindex) showing there is significance enhancement after doing yoga training. Nagai (1993: 88), stated that the stiffness of the body can be erased by doing mako training intensively. Research of Phrompaet et al. (2011) shown that the pilates group training increasing the flexibility significantly and pilates can be used as an additional training program for increasing flexibility, increasing hip and lumbar segment mobility control. Anwar, 2011 revealed that tai chi movement emphasize on slow body movement, graceful and combined with the refined and rhythmic art of breathing. This is the technique that makes tai chi believed capable to achieve the inner peace”.

According to the description above the researchers combine several training methods such as yoga, pilates, makko ho and tai chi that has been studied so that it can produce training method which is easy to do, effective and efficient for pre-elderly and elderly. With giving a good training method, there will be a recovery of joints and muscle movement function, and with the movements that stimulate muscle stretching and the increase of sinovial liquid production and good oxygenation within the body will reduce the stiffness in the joints and increase the power of muscles. It is hoped that YOKO TECHI (yoga, makko ho, pilates, dan tai chi) training method can increase the movement function and decrease the anxiety on pre-elderly and elderly woman so that the pre-elderly and elderly women can do the active move, productive and independent.

## METHOD

### *Research Model*

In this research the writer using Research and Development (R&D) Research method. According to Sugiyono (2009: 407) Research and Development research method is a

research method which is used to produce specific product, and testing the effectiveness of the product. This product is a training method which is a combination between yoga, makko ho, pilates, dan tai chi that can enhance movement function and decrease the anxiety on pre-elderly and elderly.

In Research and Development implementation, there is a process to develop or produce some specific product. According to Sugiyono (2011: 298), there are 10 steps in Research and Development and those steps is as follow: (1) potential and problem, (2) data collecting, (3) product design, (4) design validation, (5) design revision, (6) product trial (small scale), (7) product revision, (8) usage trial (big scale), (9) product revision, and (10) final product. According to the explanation above Research and Development procedure in this research had been modified as follow:



Picture 1. Steps of Research and Development research

### *Research instruments*

Research instrument used in this research is as follow

- Questionnaire
- Observation
- Anxiety level Instrument

Anxiety instrument in this research is using Hamilton Rating Scale for Anxiety (HRS-A) this scale is introduce by Max Hamilton and used first time in 1959 and had been standardize in counting anxiety. This scale contains of 14 items and every item given 5 level score and counted by men

- Function and pain scale instrument

Function and pain scale instrument is using Shoulder Pain and Disability Index (SPADI), Back Pain Functional Scale and Low Extremity Functional Scale (LEFS). This function and pain scale instrument had been translated from English to Indonesia by Dr. dr. Wara Kushartanti, MS, and re-translated from Indonesia to English for culture adaptation (cultural adaptatio) by Prof. dr. J. Hari Kusnanto, Dr. Ph. Then adapted and tested.

### Data Analysis

Data analysis technique used in this research is qualitative and quantitative descriptive data analysis so that the data analysis categorized as qualitative descriptive statistical analysis technique with a purpose that the characteristics can be visualized and it will be easy to understand in next analysis data.

Data analysis result is a basic data for analyzing developed product.

#### 1) Product Effectiveness Test

In effectiveness test got quantitative data result from pretest and posttest.

##### a. Movement function data

Movement function score got from the total addition of pretest and posttest based on every function scale instrument, and then interpreted into every movement function calculation which contain from shoulder, back and lower extremity.

##### b. Anxiety data

Anxiety score got from the total addition of score from Hamilton Rating Scale for Anxiety (HRS-A) after doing a pretest and posttest, then that score will be classified based on the anxiety degree. Range from whole result of pretest and posttest will be analyzed using SPSS program so it will be produced mean which is converted into percent for easy understanding.

As for data analysis used technique that is t-test. T-test had been done with the help of SPSS computer program version 15. Producing counting t score that can be used for knowing significance enhancement.

Basically t test is for knowing how far the influence of an independent variable individually in explaining dependent variable. As for the formula for t-test is as follow:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\left[ \frac{s_1^2 + s_2^2}{N_1 + N_2} \right] - 2r \left[ \frac{s_1}{\sqrt{n_1}} \right] \left[ \frac{s_2}{\sqrt{n_2}} \right]}}$$

Where:

X1: Pretest Mean

X2: Posttest Mean

S1: Pretest standard deviation

S2: Posttest standard deviation

S12: Pretest Variants

S22: Posttest Variants

r : Correlation between Pretest dan Posttest (Sugiyono,2009:121).

### FINDINGS

The result of the research shown that YOKO TECHI training method that consisted of 27 training movements in a shape of a nine yoga movement which is (1) Natarajasana, (2) Swing Warrior, (3) Adho Mukha Svanasana, (4) Uttita Trikonasana, (5) Parivrtta Ardha Chandrasana, (6) Maricyasana II, (7) Navasana, (8) Savasana dan (9) Sukhasana. Five makko ho movements which is (1) Spleen and Stomach, (2) Lung and Intestine, (3) Heart and Small Intestine, (4) Kidney and Bladder, dan (5) Liver and Galbladder. Eight pilates movements which is (1) Leg Stretch, (2) Cat Stretch, (3) Spine Stretch, (4) Saw Stretch, (5) Footwork Series, (6) Pelvic Peel, (7) Seal dan (8) Side Lying. Five tai chi movements which are (1) waving hands supporting the sky, (2) draw a bow (3) rotate the heel lifting arm, (4) twist your body with hips, and (5) raising hands rubbing waist to feet.

The result of the research shown that doing YOKO TECHI training for 6 weeks can enhance the movement function of shoulder, back bone, lower extremity and reduce

anxiety. That enhancement can be seen from pretest and posttest in every variables. And also can be seen that the result of movement function of shoulder, back bone, lower

extremity and anxiety is Sig. (2-tailed) <  $\alpha$ , with  $\alpha$  score is =0.05.

Table 1. The Result of Product Effectiveness Test

Variable	Mean		Enhancement/ Reduction		Ket.	
	Pretest	Posttest				
Movement function	Shoulder	22,05	4,97	17,08%	Increased	The higher the score, the bigger functional incapability will be
	Back Bone	71,63	94,09	22,45%	Increased	The higher the score, the bigger functional capability will be
	Lower extremity	68,92	90,75	21,83%	Increased	The higher the score, the bigger functional capability will be
Anxiety	17,93	7,00	10,93%	Decreased		The higher the score, the bigger anxiety will be

From the table 1 above, it can be seen that the pretest score is 22.05 and posttest 4.97 so there is an enhancement of shoulder movement function of 17.08%. For the back bone, pretest score is 71.63 and the posttest score is 94.09 so that there is an enhancement of movement function of 22.45%. on the lower extremity, the pretest score is 68.92 and the posttest is 90.75 so that there is movement function enhancement of 21.83%. On the anxiety the pretest score is 17.93 and the posttest is 7.00 so that there is an anxiety reduction of 10.93%.

## DISCUSSION AND CONCLUSION

From the whole data above that YOKO TECHI (yoga, makko ho, pilates, dan tai chi) can enhance the movement function and reduce the anxiety. That statement supported by several opinion and research results. Anwar, 2011”in tai chi movement emphasize on slow body movement, graceful and combined with the refined and rhythmic art of breathing. This is the technique that makes tai chi believed capable to achieve the inner peace”. Research from Brisbon & Lowery, 2009; Wyshake & Sklar 2009 shown that yoga can increase happiness, reduce stress

anxiety and depression. This thing is also strengthen by the research result of Farinatti et al. (2014), which is stated that flexibility in ankle, knee, hip, back bone, wrist, elbow and shoulder also total flexibility (Flexindex) showing there is significance enhancement after doing yoga training. Nagai (1993: 88), stated that the stiffness of the body can be erased by doing mako training intensively.

Based on the result of Research and developmet that had been done, it can be concluded that:

1. A precise and safe YOKO TECHI (yoga, makko ho, pilates dan tai chi) training to increase the movement function and decrease the anxiety on pre-elderly and elderly women which is contain of 27 movements YOKO TECHI movements consisted of nine yoga movement which is (1) Natarajasana, (2) Swing Warrior, (3) Adho Mukha Svanasana, (4) Uttita Trikonasana, (5) Parivrtta Ardha Chandrasana, (6) Maricyasana II, (7) Navasana, (8) Savasana dan (9) Sukhasana. Five makko ho movements which is (1) Spleen and Stomach, (2) Lung and Intestine, (3) Heart and Small Intestine, (4) Kidney and Bladder, dan (5) Liver and

Galbladder. Eight pilates movements which is (1) Leg Stretch, (2) Cat Stretch, (3) Spine Stretch, (4) Saw Stretch, (5) Footwork Series, (6) Pelvic Peel, (7) Seal dan (8) Side Lying. Five tai chi movements which are (1) waving hands supporting the sky, (2) draw a bow (3) rotate the heel lifting arm, (4) twist your body with hips, and (5) raising hands rubbing waist to feet. All of those training models summarized into one training model named YOKO TECHI consisted of 5 heating movements, 18 core movements, and 4 cooling movements. As for the training dose is: 1) Frequency: 3x a week, 2) Intensity: Medium-moderate 50-80%, 3) Duration: 30 minutes

2. YOKO TECHI (yoga, makko ho, pilates dan tai chi) training can increase movement function and decrease the anxiety on pre-elderly and elderly women.

YOKO TECHI (yoga, makko ho, pilates dan tai chi) training is effective to increase movement function and decrease the anxiety on pre-elderly and elderly women. Proven by the enhancement of movement function on shoulder of 17.08%, on the back bone there is a movement function enhancement of 22.45%, for the lower extremity there is a movement enhancement of 21.83%, and for the anxiety there is a reduction of 10.93%

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