Comfortable Menopouse with Exercise

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ABSTRACT

Menopouse is a health problem related to aging that is sure to be experienced by every woman when she reaches middle age. Menopouse is caused by the decreases of estrogen in ovaries due to the failure of negative feedback mechanism in hormonal reproductive system. The decline of estrogen synthesis will affect on various disorder of multi system organs. An appropriate and regular physical exercise is a form of natural intervention that can be done to improve menopause symptoms and decrease risk of degenerative diseases. It is recommended that resistance training is supervised by a professional, or following proper guidelines to prevent the adverse effects.

Keywords: manopause and exercise

INTRODUCTION

Menopouse is a health problem related to aging that is sure to be experienced by every woman when she reaches middle age. Menopouse is related to female reproductive function. Female reproductive function is depending on the performance of the ovaries which produce the estrogen and progesterone. The ovaries are regulated by the hormone gonadotropins, which are produced by the pituitary and regulated by the hypothalamus. Over the decades, the communication of these three organs is rely on negative feedback mechanisms.[1,2]

The performance of neuroendocrine and reproductive hormones has an impact on the physical capacity and fitness of the human body. The performance of the reproductive system reaches an optimal point at the age of 20-30 years, and then slowly declines until 45-50 years old. This condition is directly proportional to the physical ability and fitness of the human body. To maintain optimal physical abilities in old age, the body actually has the opportunity to prepare itself by maintaining a healthy lifestyle.[3,4]

Menopouse begins when the ovaries fail to respond to gonadotropins. The ovarian receptors are irreversibly insensitive to gonadotropins and disturbing negative feedback mechanism. The absence of negative feedback resulting in a gonadotropins surge followed by a decrease in estrogen production, and stimulates premenopausal syndrome such as hot flashes. The gonadotropin surge also accelerates the maturation of follicles in the ovaries, thereby accelerating the aging process of the gonads.[5]

The decrease in estrogen production causes disturbances in various organ systems. In the cardiovascular system, estrogen is cardioprotective because it increases HDL cholesterol levels and lowers LDL cholesterol levels. The decrease in estrogen also triggers central obesity due to imbalance of androgens that stimulate lipogenesis in the adipose tissue.[6] Atrophy of the reproductive and sexual organs will occur followed by a decrease in glandular cell production resulting dyspareunia and uterine prolapse due to weakness of the pelvic ligaments. The drop in estrogen also causes hot flashes due to thermoregulatory disturbances in the body. Estrogen plays a role in calcium balance, so that, a decrease in this hormone results in a decrease in bone mass. Estrogen dysfunction directly decreases muscle mass or sarcopenia, which leads to impaired physical activity. Menopause causes a decrease in catecholamine function which increases the risk of depression. Psychological disorders will occur due to a multisystem decline in function.[7]

Exercise Improves Menopouse Symptoms

Regular exercise has been shown to play a role in inhibiting the decline of body functions caused by menopause. Exercise is a natural form of intervention. This intervention is considered safer than the hormone replacement therapy (HRT). There are many forms of HRT modification to reduce side effects. However, HRT is a form of intervention that modify the natural physiological conditions. The body is supposed to experience a natural decline based on the biological clock of the hypothalamus. Currently, HRT is still at risk of cardiovascular disorders and malignancy.[8] Exercise has been shown to provide various beneficial effects. Exercise stimulates an adaptation response called *runner high* or previously known as *second wind.* When exercising, the body stimulates catecholamines, β-endorphins, dopamine and serotonin which cause a comfortable sensation (feel good

transmitter) in the body. In the recovery phase after exercise, sympathetic activation is activated to maintain vasomotor balance and improve hot flash conditions.[9] Exercise also triggers the activation of neurogenesis, anti-oxidant, and anti-inflammatory factors which will increase the resistance of neuron cells. Exercise will also distract vasomotor symptoms and the psychological burden due to menopause.[10] In the cardiovascular system, exercise improves endothelial function and vascular flexibility by increasing the activation of the NO-synthase and increasing the production of Nitric Oxide which provides an anti-inflammatory and antioxidant responses. Exercise also improves β-adrenergic receptor sensitivity. Exercise directly improves the body's metabolic response by improving lipid profile and syncytial sensitivity. This condition will inhibit the risk of hypertension, diabetes mellitus, stroke, and coronary heart disease.[11] Exercise has also been shown to improve bone density. Muscle movement during exercise puts stress and stretch loads on the bones which stimulate osteoblast activation and growth factor to stimulate influx calcium into the bones.[12]

Muscle loading will stimulate muscle myofilament synthesis to prevent sarcopenia. Exercise will also cause motor neuron signal adaptations so that the muscles will be more flexible to improve agility and balance. Exercise will activate the β-motor neuron signal and inhibit the motor neuron signal. This will reduce muscle tension, increase musculoskeletal tolerance to pain and stiffness to improve joint motion, gait disorders, back pain and dyspareunia.[10] When physical activities are carried out in groups people, it occurs social interactions that have a positive effect on psychological conditions. Exercise will improve the body composition to be more ideal, so that it will increase self-confidence. Psychologically, people who start to actively exercise, have a domino effect that, they will try to improve the quality of others lifestyle[9]

Appropriate Exercise for Menopouse Woman

The improvement of menopausal symptoms is not only enough with improvement in physical activity. Physical activity is an activity that increases

the motion or contraction of the skeletal muscles in carrying out daily tasks. This activity is sporadic depending on the needs. Exercise is a form of activity that involves the skeletal muscles that are programmed in a standard, planned, continuous and regular manner. Exercise have a clear and measurable goals. American College of Sports Medicine, recommends for those who are accustomed to physical activity and do not experience symptoms of severe menopausal disorders. Physical activity programs that are usually done can be continued. However, for those who already have clinical problems, it is best to follow a standardized exercise program.[11] In 2007, ACSM, which was adopted by WHO in 2012, campaigned for an exercise is medicine (EIM) program. This means that exercises can be equated with treatment, where the program must be implemented with standardized doses that are measured with specific targets. The training program is given in the form of an exercise recipe that contains components of Frequency, Intensity, Type, and Time (FITT). For those who have experienced clinical symptoms of menopause, the exercise program should be continuously guided and monitored by professionals.[13] Before the FITT prescription is given, individuals must undergo screening to detect various multi-organ disorders that are often experienced by elderly such as obesity, arthritis, osteopenia / osteoporosis, spinal disorders or back pain, diabetes mellitus, bronchial asthma / cardial asthma, chronic obstructive pulmonary disease, cystic fibrosis, coronary heart disease, congenital heart disorders, heart trouble, hypertension, kidney failure and disabilities. If the patient has experienced these disorders, it is necessary to carry out special exercise training supervised by health professional exercise trainer, based on patient's clinical condition. To determine the training target, it is necessary to train the level of physical fitness with 4 assessment components, namely aerobic capacity, muscle strength and endurance, flexibility, and body composition. The evaluation will later be carried out by measuring the fitness repeatedly.[14] The exercise begins and ends with stretching, the frequency of training gives an opportunity to rest days, and is individual. The intensity starts at a low level, increasing gradually with realistic targets. The dominant type of exercise is aerobic and variations in weight sports. Routine evaluations supervised by trained instructors. During the pandemic, comply with the Covid-19 protocol.

Menopause has an impact on multi-organs, so the exercise should ideally be varied, such as a combination of aerobic, resistance, flexibility and balance exercises.[15]

The following is an example of exercise recipes for menopausal woman

Table 1. Menopouse Phase Exercise Recipes

	Aerobic Exercise	Resistance Exercise
Frequency	3-5 times/ weeks	2-3 times/ weeks
Intensity	Initial: 50% Maximum Heart Rate (MHR) Target: 70 % MHR HR: 220-lifespan, Age 50 years, 75% MHR= 120/minutes	Initial: Self body load Target: 60-70% maximum load
Type	Walk or run or; low impact Gymnastics	Big muscles: – Lateral raise (shoulder) – Chest press (chest, shoulders, triceps) – Arm cross (chest, shoulders) – Wrist flexion / extension (wrist) – Rowing / torso-arm (lat. Dorsi, shoulder, biceps) – Pullover (lat. Dorsi, trapezius, abdomen) – Lumbar extension (low-back) – Hip extension (gluteus, hamstring, back) – Leg extension (quadriceps) – Leg press (gluteus, quadriceps, hamstring)
Time	30-50 minute per session or total 150 minute/week	12-15 reps/session

Table 1 is an example of exercise recipes that can be done by whom entering the menopause phase. Aerobic exercise should be weight bearing, meaning that during exercise, the body remains burdened by gravity to simultaneously improve bone density. The intensity starts with light intensity and increases gradually up to the training zone. The time can be flexible, but at least a total of 150 minutes / week. For bone health, resistance training needs to be done with increasing weight gradually. It is recommended that resistance training is supervised by a professional, or following proper guidelines to prevent the risk of injury. If there is already an osteoporosis problem, it is necessary to carry out special exercise interventions for osteoporosis under the guidance of a trained and certified instructor. Flexibility and balance exercises can be done in the form of yoga, tai chi, or pilates exercises, and still have to adjust to the participants' conditions[16]

Conclusions and suggestions

Menopause is a natural life cycle process that is experienced by all women. This natural cycle has an impact in the form of a decrease in the function of various organ systems. Efforts to improve menopausal symptoms with hormone and drug interventions have generated controversy due to adverse side effects. This natural decline in function should be treated with natural interventions as well. Physical exercise is a form of natural intervention that can be done to improve menopause symptoms. Exercise must be done properly, correctly, regularly and measured, because menopausal sufferers are at risk of experiencing various degenerative diseases.

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