Effects of ASE Program on CPG and Body Composition in Persons with Type 2 Diabetes

Ratchanok Phonyiam, MSN, RN
TYPE 2 DIABETES IN THAILAND

Prevalence of diabetes in 2017: 8.3%
Expected to increase in 2045: 10.8%

79 % classified as uncontrolled diabetes

(Aekplakorn et al., 2018; International Diabetes Federation [IDF], 2018)
CONSEQUENCES OF UNCONTROLLED DIABETES

Costs | Hospitalization | Morbidity | Mortality

(American Diabetes Association [ADA], 2018; IDF, 2018)
DIABETES MANAGEMENT IN THAILAND

“Sam Aor Song Sor” Principle

(Thai Health Promotion Foundation, 2018)
ARM SWING EXERCISE (ASE)

- A mild-moderate intensity exercise
- Simple and practical without any equipment
- Traditional ASE only focuses on upper body movement

(Khamsom, Terathongkum, & Kittipimpanon, 2017; Terathongkum, 2017)
Therefore, modified ASE was promptly developed as whole body movement to promote muscle contraction and joint movement.
Arm Swing Exercise Program

- Provide knowledge & demonstrate ASE using verbal persuasion with physiological and effective state and vicarious experience.
- Return demonstration and assign ASE using mastery experience.
- Perform group discussion and telephone follow-up using verbal persuasion with physiological and effective state.

CONCEPTUAL FRAMEWORK

- Capillary Plasma Glucose
- Body Composition
  - Body Mass Index
  - Visceral Fat
  - Skeletal Muscle
MATERIALS AND METHODS

A quasi-experimental research

Ban Phai Rong Wua Sub-district Health Promoting Hospital, Suphanburi province, Thailand
INCLUSION CRITERIA
- Aged ≥20 years
- Diagnosed T2DM by a physician more than a year
- HbA1c ≥ 7.0%
- Treated only oral antidiabetic drug without severe diabetes complications
- Had ability to perform ASE

EXCLUSION CRITERIA
- Performed MASE <90 mins/week,
- Missed appointments
- Referred to hospital or adjusted medication

Sample Selection: Designated persons with type 2 diabetes following inclusion criteria and randomly selected without replacement
PARTICIPANT ENROLLMENT

Assessed for eligibility (<i>N</i>=50)

Randomized (<i>N</i>=30)

Analyzed (<i>N</i>=24)

Excluded in the 8th week
- Refer to secondary hospital (<i>N</i>= 1)
- Loss follow-up (<i>N</i>=5)
Inform consent

1st Week

Assessment of CPG and body composition as baseline
ASE PROGRAM

1st Week

Poster of ASE practice

Return Demonstration
ASE PROGRAM

2nd, 3rd, 5th, 6th, 7th, 9th, 10th & 11th weeks

Telephone Follow-up

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<th>ปัญหาอุปสรรค</th>
<th>แนวทางแก้ไข</th>
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ASE PROGRAM

Assessment of CPG and body composition

Baseline

8th week

Post-Intervention
CHARACTERISTICS

$N = 24$

Average Age: $58.38 \pm 8.87$ years (range 41-78)

Duration of diabetes: $6.83 \pm 4.97$ years (range 1-20)

37.5% Male
62.5% Female
CHARACTERISTICS

Educational Level

- 91.7% Primary School
- 8.3% Secondary School
CHARACTERISTICS

Marital Status

- Single: 75%
- Married: 12.5%
- Widowed, Divorce: 12.5%
**CHARACTERISTICS**

### Occupation

- **Agriculture**: 41.7%
- **Trade**: 29.2%
- **Government/State Enterprise**: 12.5%
- **Employee**: 8.3%
- **Unemployee**: 8.3%
CHARACTERISTICS

Comorbidity

- 29.2% None
- 70.8% Have

- 29.4% HT
- 23.5% DLP
- 47.1% HT & DLP
CHARACTERISTICS

**Follow-up at NCDs Clinic**
- Regular: 83.3%
- Irregular: 16.7%

**Exercise Behavior**
- None: 29.2%
- Have: 70.8%
Table 1: Comparison of mean CPG, BMI, visceral fat, and skeletal muscle at the baseline, 8th week, and post-intervention after receiving the MASE Program using repeated measures analysis of variances (n=24)

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<th>Variable</th>
<th>Source of variance</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
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<td>BMI (kg/m²)</td>
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<td>Visceral fat (%)</td>
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<td>Skeletal muscle (%)</td>
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RESULTS & DISCUSSION

CPG (mg/dl)

Baseline: 156.00
8th week: 139.87
Post-intervention: 143.67
RESULTS & DISCUSSION

BMI (kg/m²)

Baseline 8th week Post-intervention
RESULTS & DISCUSSION

Visceral fat (%)

Baseline 8th week Post-intervention

13.17 13.39 13.14
RESULTS & DISCUSSION

Skeletal muscle (%)

Baseline  8th week  Post-intervention

24.46  24.9  25.28
CONCLUSIONS & SUGGESTIONS

- 12-week of ASE demonstrated better outcomes: CPG, BMI, visceral fat, and skeletal muscle.

- ASE program should be integrated as a long-term lifestyle of persons with T2DM.

- Further research should be an experimental design with increased time for intervention, especially in older adults.


THANK YOU
ขอบคุณค่ะ