

Introduction

Obesity is a major public health challenge; more than one-third of U.S. adults are obese (1). Obese individuals have an increased risk for developing heart disease, stroke, type 2 diabetes and certain types of cancer.

The management of obesity includes lifestyle modifications such as increased physical activity. However, more than 80% of adults do not meet the physical activity recommendations (2). Thus, there is a need to identify options that can attract those who are not inclined to follow conventional exercise strategies.

In recent years mind-body exercises gained popularity. Although more than 18 million perform yoga and/or Tai Chi, and more than 10 million use Pilates in the U.S., we know little about the potential benefits of these exercises related to obesity (3).

The review will report on design, frequency and duration of interventions, outcomes, attendance, and characteristics of participants. The results will indicate potential knowledge gaps and will have an impact on future research directions.

Goals and Objectives

Aim:

To review whether mind-body interventions can help to reduce obesity-related medical conditions.

Methods

Data Sources:

Searches were performed using PubMed, PsycInfo, and the Cochrane Database. The search was performed for articles published between January 2000 and July 2014.

Study Selection:

Mind-body interventions examining the effects on obesity-related risk factors and included at least one of the following terms in the key words or in the abstract: Overweight, weight, obese, obesity, BMI, diet, body fat, waist circumference.

Methods

Included Mind-Body Exercises:

The Alexander Technique (AT) helps individuals to become aware and correct unconscious habits of their posture.

The Feldenkrais Method (FM) has two techniques: Awareness Through Movement (ATM) and Functional Integration (FI). Teachers guide individuals verbal (ATM) or non-verbal (FI) through sequences of gentle movements designed to improve the nervous system.

Gyrokinesis (GK) is a contemporary method inspired by yoga, swimming, dance, tai chi and gymnastics. Although GK uses a wide range of movements for the whole body, there is a focus on core muscles groups (spine, pelvis and abdomen).

Neuromuscular integrative action (NIA) is one of the contemporary mind-body exercises. NIA movements are inspired by aikido, Alexander Technique, Feldenkrais, tai chi, yoga and jazz dance.

Pilates is a system of slow, controlled exercises that require an internal focus. The movements are designed to improve physical strength, flexibility, and posture, and enhance mental awareness.

Qigong is one approach of the Traditional Chinese Medicine. Qigong uses simply choreographed movements. The technique is designed to integrate mind and body, balance the unobstructed flow of energy through the body's pathways (meridians), and thereby improve health.

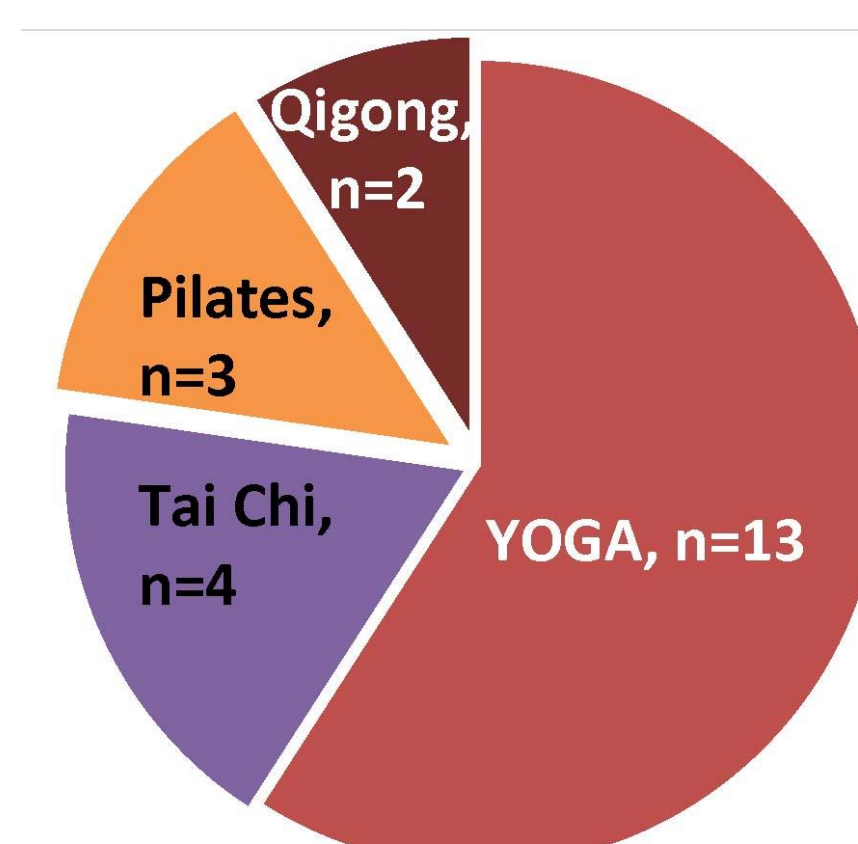
Tai chi chuan is a martial art practiced for self-defense and health. Many forms of the tai chi exist, simplified forms may include only 24 choreographed movements while others include 108 movement routines.

Yoga is a physical, mental, and spiritual practice with the goal to alter body and mind, and widely practiced for health and relaxation. Different styles (e.g., restorative, hatha, lyengar) and a vast repertoire of poses (asanas) exist.

Results

Searches generated 4868 hits; after eliminating duplicates, non-intervention studies, and studies using a mind-body exercise in combination with other intervention types, 22 studies (4-25) fulfilled the selection criteria. No study used the AT, FM, GK or NIA to examine obesity related outcomes.

Figure 1: Number of Studies by Mind-Body Intervention Types



Results

Design:

The study type of the included 22 studies varied:

- No control group, n=3
- Randomized controlled trials (RCTs, n=11)
- Six of the 11 RCTs enrolled less than 40 subjects

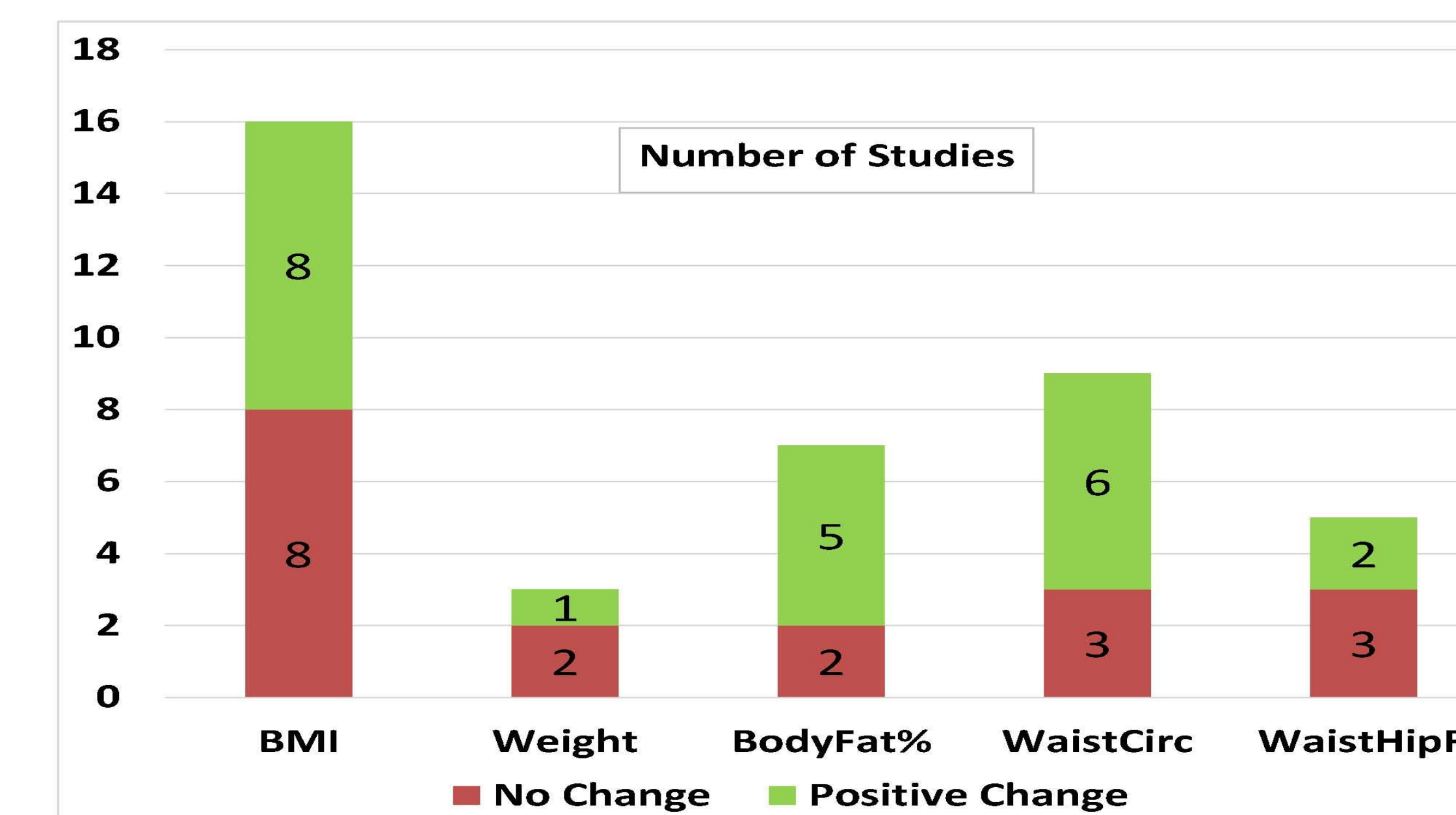
Participants:

- 1,452 individuals participated in the studies (n=765 attended the mind-body interventions)
- More females (n=450) than males (n=237) attended the mind-body interventions

Sample Characteristics of Studies:

- Obese boys, age 13 to 15 (n=1)
- Adolescents with type 2 diabetes (n=1)
- Adults (n=20)
 - Pre-diabetic, Type 2 Diabetes, Elev. Blood Glucose (n=7)
 - Overweight, Obese, Metabolic Syndrome (n=5)
 - Other (n=8)

Figure 2: Effects of Mind-Body Interventions on BMI, Weight, Body Fat %, Waist Circumference & Waist-to-Hip Ratio



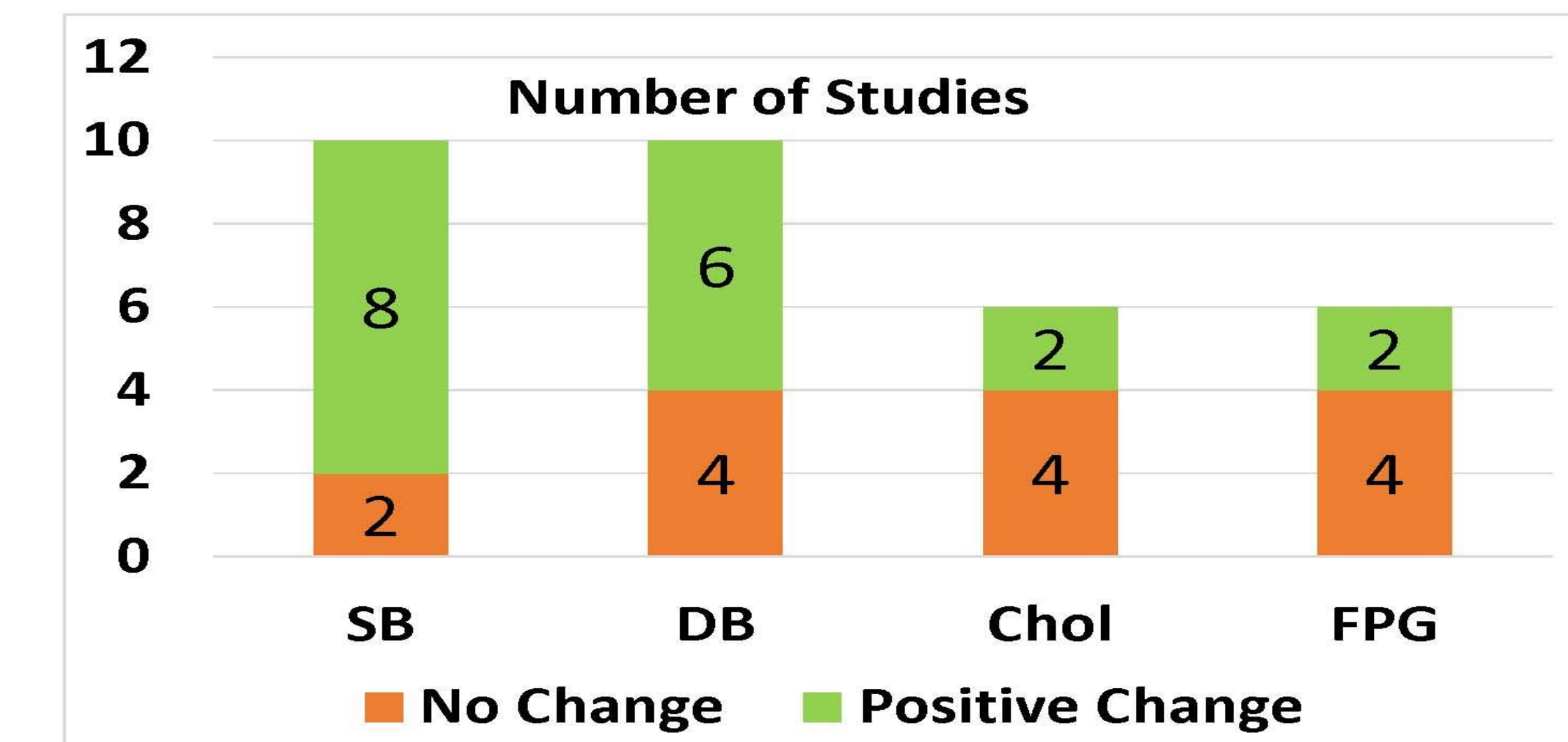
Session Frequency & Duration of the Interventions:

Most studies provided the frequency of sessions; the length of the sessions was not available for all studies. The number of reported sessions varied between 8 to 120, and sessions lasted 45 to 90 minutes.

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Results

Figure 3: Effects of Mind-Body Interventions on Blood Pressure (SB, DB), Cholesterol (Chol) & Fasting Plasma Glucose (FPG)



Attendance & Compliance:

The information about attendance and compliance was scarce, varied greatly and reporting would require to contact authors.

Discussion

The findings of this review suggest that mind-body exercises are unlikely to alter the waist-to-hip-ratio, levels of cholesterol or fasting plasma glucose, and the effects on BMI are inconclusive. For reducing blood pressure, body fat percentage and waist circumference the results are more promising. Our results cannot support the health benefits (lowering cholesterol & fasting plasma glucose) of yoga reported by an earlier review that included intervention and observational studies (26).

Conclusions

Large scale studies are needed employing more rigorous methods to examine effects of mind-body exercises on outcomes associated with obesity and related chronic health issues (hypertension, type 2 diabetes).

References

References are provided in the handout.