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Guidelines for Weight Management Programs

Part 1: Establishing baseline measurements

Minimally, BMI must be measured and weight to be assessed at mid-point and final sessions of the programme. It is important to establish protocols for how measurements will be done and training to be given to the staff / service provider(s) involved.

1. Measuring height accurately
 - Remove the shoes, hair ornaments, hat/cap that interferes with the measurement.
 - Take the height measurement on flooring that is not carpeted and against a flat surface such as a wall.
 - Stand with feet flat, together and against the wall. Make sure legs are straight, arms are at sides and shoulders are level.
 - Look straight ahead and line of sight is parallel with the floor. Measurement is taken using a flat headpiece to form a right angle with the wall with it firmly touches the crown of the head. Measurer's eyes should be at the same level as the headpiece.
 - Record the height accordingly.
2. Measuring weight accurately
 - Remove shoes, heavy clothing and empty the pockets.
 - Stand on the weighing scale with both feet in the centre of the scale.
 - Record the weight accordingly.
3. Body Mass Index (BMI) is an internationally accepted measure for adiposity in adults and a widely used barometer for public health action. It is calculated by dividing weight (in kg) by height (in meters) squared. That is, $BMI = \text{weight (kg)} / \text{height (m}^2\text{)}$.

3.1 The WHO guideline for the International BMI Classification is as follows:

Classification	BMI based on International Classification
Underweight	<18.5
Normal weight	18.5-24.9
Overweight	≥25
Pre-obese	25-29.9
Obese	≥30

This common classification allows for a uniform tracking of obesity rates and comparisons across all countries.

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3.2 However, BMI may understate body fatness in some ethnic groups. A panel of experts was convened in 2002 to determine the BMI cut-off points for overweight and obesity in Asian populations. It was recognised that risks for cardiovascular disease and diabetes mellitus exist at lower BMI points for Asian populations and therefore additional BMI ranges are recommended for public health and clinical action. In Singapore, we use the Asian BMI cut-off points (details in the table below) in order to reach a larger segment of the population with health promotion initiatives.

Cardiovascular disease risk*	Asian BMI Classification	Current WHO BMI cut-off points	Key Message
Underweight	<18.5	<18.5	AT RISK of nutritional deficiency and osteoporosis. You are encouraged to eat a balanced meal and to seek medical advice if necessary.
Low	18.5 to 22.9	18.5 to 24.9	Achieve a healthy weight by balancing your caloric input (diet) and output (physical activity).
Moderate	23.0 to 27.4	25.0 to 29.9	Aim to lose 5% to 10% of your body weight over 6 to 12 months by increasing physical activity and reducing caloric intake
High	27.5 to 32.4	30.0 to 34.9	Aim to lose 5% to 10% of your body weight over 6 to 12 months by increasing physical activity and reducing caloric intake. Go for regular health screening to keep co-morbid conditions* in check.
Very high	32.5 and above	35 and above	Aim to lose 5% to 10% of your body weight over 6 to 12 months by increasing physical activity and reducing caloric intake. Go for regular health screening to keep co-morbid conditions* in check.

**Cardiovascular risks of metabolic syndrome, including Type 2 Diabetes, Hypertension and Hyperlipidemia.*

Note: BMI values do not apply to children, pregnant women, people with muscular build (eg. athletes and body builders) or the elderly.

3.3 Other forms of measure:

- a. For weight management, it is recommended to monitor weight and waist circumference. Compared to BMI, waist circumference is a better predictor of total body fat and often used to assess cardiovascular risk. WHO recommends the following thresholds for waist circumference as an indicator for public health action:

	Waist circumference (cm)	
	Men	Women

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Asia-Pacific Consensus	≥ 90	≥ 80
WHO	≥ 102	≥ 88

- a. Measuring waist circumference: use a standard measuring tape (non-stretchable). This is done close to the skin and ensure that the tape is in between the lower ribs and navel. Measure your waist circumference during exhalation.
 - b. When conducting waist circumference measurement, ensure that participant's privacy and comfort level is considered at all times. This involves use of privacy screens or rooms. Staff must be trained to conduct the measurements. You may engage a nurse or any healthcare professional or fitness trainer to conduct the measurements.
- 3.4. There is lack of evidence to support the use of bioimpedance (in particular body fat) to predict body fat in adults. The accuracy of bioimpedance varies with the method of use and the equipment is generally regarded as less accurate than those used clinically or in nutritional and medical practice.
- 3.5. Fitness level measurements may also be used as one of the indicators for your weight management programme. Although the end goal is to lose weight, fitness level is also important to highlight as part of a holistic approach to weight management.
- Common measures used to test fitness level are the 2km walk test and the 2.4km run test. The algorithm is based on gender, age, BMI, heart rate and time completed.
 - Another alternative is to use the Non-exercise Fitness Test, which has been validated in Singapore.

Part II: Programme design and delivery

1. Key Components

a. Assessments

- A crucial part of the intervention is establishing the baseline measurements of your participants to determine whether they are the appropriate target audience. Minimally, BMI must be measured and weight to be assessed at mid-point and final sessions of the programme.
- Besides the anthropometric measures, you should also consider administering a questionnaire that will allow you to assess the level of readiness and background of your participants (esp if they have any medical history or have attempted to lose weight before). It is also important to measure improvements in knowledge, attitudes and practices and it can be done via a pre / post-questionnaire.

b. Nutrition

- Besides engaging in adequate physical activities, nutrition also plays an important role in weight management. Key takeaways should educate the participants on the following: energy balance, myths about weight loss (and fad diets), the healthy plate, portion sizing, practical tips on choosing healthier meals / food products, food preparation, and meal planning (preferably in this order).

c. Physical Activity

- Following the energy balance concept, the physical activity component is just as important as nutrition. Key takeaways should educate the participants on the following: importance of exercise, strategies to recognise and overcome common barriers to exercising, and apply principles related to exercise, and exercise safety.
- The types of exercises conducted each week should vary and progress in intensity depending on the fitness level of your participants. In a weight management programme for beginners, exercise sessions should start with low impact aerobics and basic exercises that can be done at home. The focus should be on correct posture and execution of the exercises to avoid injury.

d. Behaviour modification

- The key principle that underlies weight management programmes is behaviour modification. We focus on strategies that enable participants to incorporate small changes in their daily lives and sustain it over a long period of time. Drastic changes are not recommended as it will be difficult to sustain over the long run.
- It is recommended to target to lose 0.5 to 1kg per week or 5% to 10% of body weight in 6 to 12 months.
- First step is about goal-setting, which needs to be covered immediately at the first session and reinforced in subsequent sessions. Participants typically start the programmes on a high and often with unrealistic expectations on what they can achieve. Setting SMART objectives will help participants manage their own expectations. Trainers must emphasize that weight loss takes time and adjustments need to be made along the way.

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- Alongside goal-setting is the need to self-monitor.
 - Minimally participants should track their weight 1x a week (same day and time).
 - Tracking physical activity levels can be done by recording the minutes of medium to high intensity levels of physical activity done in a week. Participants should work towards achieving 150 minutes or more per week. Another way is to count steps using a wearable, pedometer or mobile app, and participants should work towards achieving at least 10,000 steps per day. Trainers should highlight that these targets can be broken down and gradually increased over time depending on the fitness levels of the participants.
 - Monitoring your food intake and recording it down heightens your self-awareness on what works and what doesn't. It allows you to re-calibrate your goals and progress further in your weight loss journey. However, counting calories on a daily basis can be very onerous and realistically not many can track religiously for more than 1 month. The key to managing calorie intake is determining how best to cut your daily consumption through smart eating (portion sizes and choosing healthier food). The Healthy Plate model provides a simple visual representation of what a balanced meal should be like and how you can adjust the portion sizes by simply reducing the size of the plate.
- Psychological aspect of weight management is often seen as the most challenging part. Most people have the desire to lose weight but not everyone will act on it. Some will start but will find it difficult to sustain. In a weight management programme, it is important to address these issues by tackling the challenges, perceived barriers, motivations and emotional aspects. Confronting these challenges and perceived barriers with a shift in mindset is an essential strategy for participants to adopt. Recognising the emotional triggers for lapses can help participants better plan in advance and be better prepared to handle situations when they arise. Planning ahead enhances self-confidence and ability to overcome challenges.

e. Follow-up

- Incorporate follow-up sessions as part of your programme. Collect actual weight measurements whenever possible – at least for the 6th and 12th month. Studies have shown that short-term interventions are effective for weight loss but there is a need for more evidence on whether interventions can sustain the weight loss over long term periods. Studies have also shown that participants who are able to maintain the weight loss at 1 year are most likely to keep it off for life.
- Follow-ups can be done in different ways: face-to-face, phone and email.