SEDENTARY LIFESTYLE

AN ALARMING EPIDEMIC

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'Sedentary' behaviour has been defined as activity requiring a body energy expenditure of 1.5MET[1] (metabolic equivalent) – calculated by the number of hours spent sitting or lying per day. While 'physical inactivity' has been defined as "adults performing less than 30 minutes of moderate exercise five times a week or less than 20 minutes of vigorous exercise less than three times a week"[2]. Physical inactivity has been identified as the fourth leading risk factor for death worldwide (6% of global deaths)[3]. In addition, sedentary lifestyle (physical inactivity) is one of the top ten causes of death globally – responsible for approximately 3.2 million deaths per year. It is surpassed only by high blood pressure (13%), tobacco use (9%) and carries the same risk as high blood glucose (6%), while obesity is responsible for 5% of world mortality[4]. In general, we can consider the term 'sedentary lifestyle' to include both sedentary behaviour and physical inactivity.

Sedentary lifestyle is a major independent risk factor for non-communicable diseases (NCDs) such as hypertension, type 2 diabetes mellitus, obesity and cardiovascular disease, often referred to as 'lifestyle diseases'. The prevalence of NCDs has increased dramatically over the last 2 decades, particularly in developed countries, although more recently in developing countries as well. Deaths attributable to NCDs have been estimated to be the number one cause of death worldwide[5] and in Qatar in the last 10 years. The Qatar national STEPS survey 2012 looking at the health and behaviour of almost 2500 adults in Qatar, found that 45.9% reported low levels of activity, 41.4% were obese, 32.9% had high blood pressure, 21.9% had high cholesterol and 16.7% had diabetes mellitus (higher than the USA 11.3%, United Kingdom 4.9% and Yemen 2.5%)[6].

Factors that contribute to a sedentary lifestyle are:

- Increased use of computers, TV and other 'screens' (tablets and smart phones) for work, school, entertainment and social interaction.
- Online shopping.
- Increased access to motorised transport.
- Urban design not favouring walking or cycling.
- Automated manufacturing processes.
- A reduction in sports activities in schools.

One important international study linked sitting time and the development of NCDs, regardless of general health status. Australian researchers tracked the lifestyle habits of 8800 adults and found that each hour spent in front of a TV daily

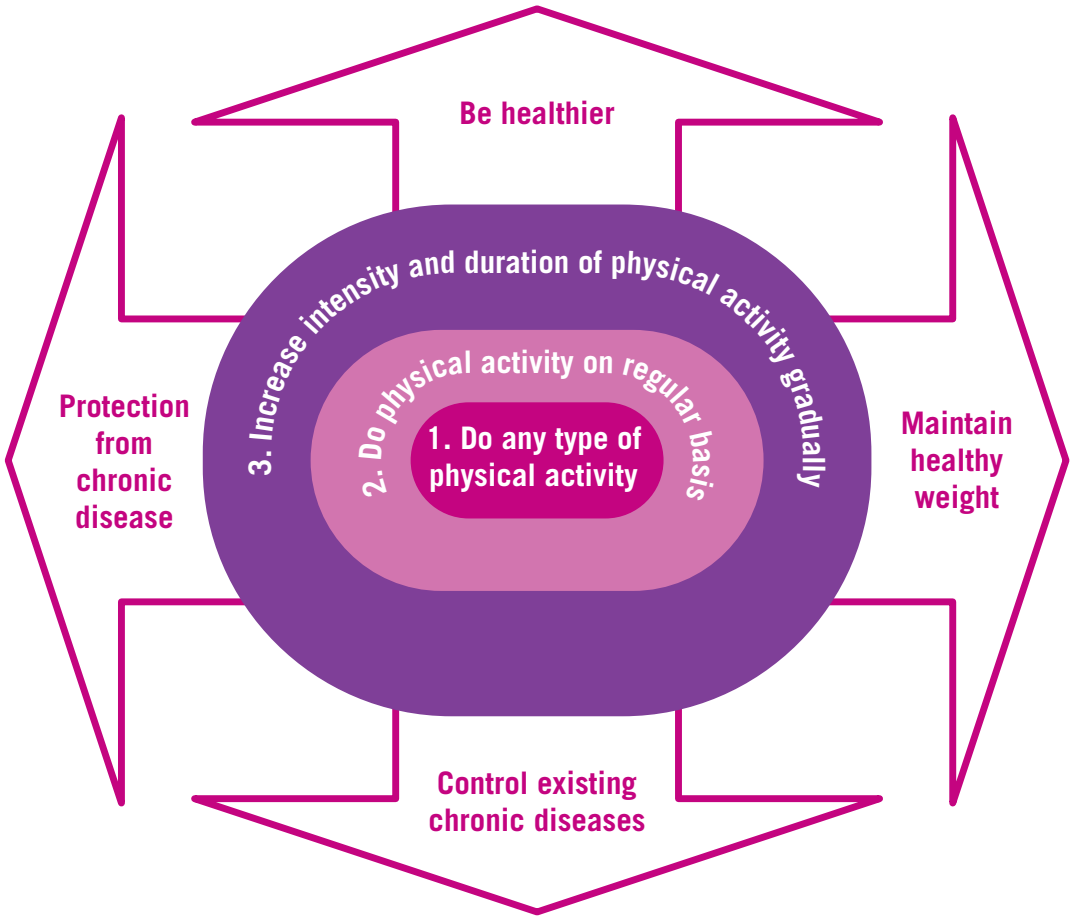

Figure 1: An example of target setting to achieve physical activity goals, starting from practicing any type of physical activity, to regular daily activity, which can gradually be increased in intensity and duration.

was associated with an 11% increase in risk of death from all causes and a 9% increase in risk of death from cancer because of malignancy, in addition to an 18% increase in risk of death from cardiovascular disease. Compared with those who watched less than 2 hours of TV per day, those who watched more than 4 hours per day had a 46% increased risk of death from all causes and an 80% increased risk for cardiovascular disease-related death[7].

THE BENEFITS OF REGULAR EXERCISE

Over recent years, evidence has strongly supported that regular exercise has many benefits for both young and older adults including lower risk of:

- Early death.
- Coronary heart disease.
- Stroke.
- High blood pressure.
- Adverse blood lipid profile.
- Type 2 diabetes.
- Metabolic syndrome.
- Colon cancer.
- Breast cancer[8].

THE MAIN ROLE OF HEALTHCARE PRACTITIONERS IN COMBATING A SEDENTARY LIFESTYLE.

Healthcare providers (HCPs) have a responsibility to educate the community and their patients about the risks of sedentary lifestyle and to encourage them to be more physically active to reduce the associated risk of diseases, disability and death. Considering physical activity as a vital sign is one way of reminding HCPs to regularly enquire about their patients' physical activity levels, at the same time as they check other vital signs (for example, blood pressure). Making this a routine question will also raise patients' awareness of the importance of physical activity.

The pattern of sedentary behaviour often begins at school, before the person is aware of the risks[2]. The best way to prevent a sedentary lifestyle later in life is through primary prevention, by encouraging school children and young adults to incorporate regular physical activity into their daily routine, before a sedentary lifestyle becomes established.

Unfortunately simply giving patients advice to alter their lifestyle is often ineffective. Even when faced with the compelling evidence that a sedentary lifestyle is extremely hazardous for their health and that regular physical activity is effective in the primary prevention of NCD, many people struggle to increase their activity levels.

Motivational interviewing (MI) is one technique that has been shown to promote behaviour change in some healthcare settings but there is a need for studies on the efficacy of MI in changing diet and increasing physical activity. With this technique, instead of using a prescriptive style which tries to solve the problem for the patient by directing them for example to 'eat less and exercise more' it uses a guiding style where the interviewer listens to the patient to understand their perspective on the issue and gets them to contemplate their values and come up with their own solutions to the problem e.g. 'it is up to you to decide when and what changes to make' or 'can you suggest what changes

you think you can make?'[9]. Although the main strategy of MI is to get the patient to come up with their own solutions, the HCP can help by providing information and offering suggestions where appropriate. While MI can be effective, it requires some skill and takes time to learn and the lack of time available in healthcare consultations may be a barrier to its use. It should not be considered a quick fix but over time is likely to be more successful than a purely prescriptive style, particularly in those who are resistant to change.

Another technique that physicians can easily remember and use for approaching the subject of physical activity is the '5 As' model; Assess, Advise, Agree, Assist, Arrange[10]. This is a conversational technique that can be used in short consultations:

1. The first step is to assess the patient's physical activity level, having first requested permission to discuss this. The physical activity vital sign score (PAVS) can be calculated by multiplying the minutes of physical exercise per day (where the patient's heart beats faster and they breathe harder than normal) by the number of days in a typical week that they have performed such physical activity, expressed in minutes per week. This score should be recorded in the patient's notes and can be followed over time, like other vital signs such as blood pressure.
2. If the patient is not sufficiently active the HCP should advise them to increase their physical activity in an appropriate manner, taking into account their health problems or other individual circumstances.
3. The HCP and patient then agree on a physical activity goal over the upcoming month and the HCP gives a written prescription to the patient.
4. Various techniques can be used to assist the patient with their self-motivation and self-confidence. Many patients find that compliance with a physical activity programme varies with time. It is important for the HCP to reassure them that relapses are not uncommon, to understand why this might have occurred and to learn techniques to avoid a recurrence.
5. Finally, agree on a follow-up visit in about 1 month (the timeframe should be kept short to support and motivate the patient through the process of change), or refer them to an Exercise is Medicine clinic for a comprehensive intervention programme.

For those that have a very low baseline physical activity and fitness level, the initial goal should be simply to build increased physical activity into their normal daily routine. Once this has been established, the intermediate goal should be to reach the patient's recommended daily physical activity levels. The long-term goal should be to reach the recommended target of 150 to 300 minutes weekly, of moderate intensity aerobic activity, thereby achieving an improvement in health and well-being.

EXERCISE PRESCRIPTION

Physical activity prescription should be tailored to the individual patient and take into account factors such as their current physical fitness, medical problems, preferred physical activity type, access to recreational facilities and time available for physical activity. It can put in four basic categories: Frequency, Intensity, Time and Type (FITT).

Most physical activity guidelines and books[3,6,8] contain a series of different tables and explanations about physical activity prescription for different age groups and common associated medical conditions including advice about duration and type of physical activity.

Some patients feel uneasy with the whole concept of 'exercise' and associate it with going to the gym, getting sweaty and wearing sports clothes. It may therefore be less threatening to avoid using the term 'exercise' and instead use the term physical activity. Such patients can be encouraged to start on the journey by initially getting them to suggest ways of introducing more physical activity into their daily routines. For example, parking at the far end of the car park when going to work, to pray or to the shops, or by making a point at work of going to speak to someone in a different office rather than emailing or phoning them.

Healthcare providers have the responsibility to educate the community and their patients about the risks of sedentary lifestyle

Screening prior to prescribed exercise

Before prescribing therapeutic exercise or an increase in physical activity, medical conditions that preclude this should be considered. The Physical Activity Readiness Questionnaire (PAR-Q)[11] from the Canadian Association of Physiologists, is a self-administered form and is one tool that can be used to identify those who might require further medical assessment before an increase in physical activity is prescribed.

HOW MUCH PRESCRIBED EXERCISE IS ENOUGH?

Physical activity recommendations can be broken down into three different components; increasing physical activity with activities of daily living, aerobic exercise and thirdly, strength exercises. These are outlined below:

1. Introducing an increase in physical activity levels into daily routines: suggestions include climbing stairs instead of taking a lift, doing housework or gardening (in geographical locations where this is feasible). The main objective must be to minimise sitting time, particularly continuous sitting. It is the key sedentary behaviour associated with major health risks. We need to interrupt our sitting time where possible. Movement will reduce muscle pain spasm and other musculoskeletal problems.
2. Aerobic exercise: for healthy adults, aged between 18 and 64, aerobic exercise for 30 to 60 minutes should be performed on at least 3 to 5 days a week and should total 150 minutes per week. However shorter periods of exercise (of over 10 minutes) can be accumulated throughout a day. Aerobic exercise is effective at 'moderate to vigorous' intensity. The intensity can be measured using subjective or objective tests. The easiest and most practical ways are to use a speech test or the Borg scale from 6 to 20, which measures the rate of perceived exertion, or the modified Borg scale CR10. Moderate intensity can be gauged as being somewhere from 12 to 16 on the Borg scale – or at a level that increases the heart rate, makes one sweaty or short of breath, but still able to speak. The speech test is also a subjective tool, relying on the patient to measure the physical activity intensity, depending on their ability to speak. If the patient can speak, but cannot sing it is considered of moderate intensity. If the patient cannot speak and sing, it can be considered of severe intensity. The benefits of exercise are related to the total energy expenditure, which is expressed through intensity and duration of activity. For example, either 150 minutes of brisk walking per week (moderate intensity) or 75 minutes of running per week (vigorous activity) would be equivalent[14]. The most appropriate type of exercise will vary from person to person depending upon their personal circumstances, prior levels of fitness, skill levels and health status, but it should involve large muscle groups and require little skill to perform. Walking is the simplest example that suits most people. Compliance will be improved if the chosen form of exercise is enjoyable to the person, is convenient and if done with other people, rather than alone. Moderate or vigorous intensity exercise should be preceded by a 5 to 10 minute warm-up period of low intensity aerobic activity, such as walking or light cycling.
3. Strength exercises: strength exercises should be performed on two to three occasions per week. Examples of this are sit-ups, press-ups, calf raises, using resistance bands or lifting weights. One set of eight to 10 different exercises (different muscle groups) are recommended by FYSS. Each exercise of 2 to 4 sets, each set of 8 to 12 repetitions of 60% to 70% of 1 repetition maximum (RM). One repetition maximum means the maximal load that can be lifted through the full range of movement once.

Any exercise should be preceded by a warm-up and stretching. The warm-up should consist of 5 to 10 minutes of low-intensity activity such as walking, low-resistance cycling or doing some arm range of movement exercises without resistance. Stretching exercises should target the muscle groups that are going to be performing the strength exercises.

For most people, there should be a gradual, stepwise increase in the amount and intensity of physical activity over time. The speed at which activity levels are increased will depend on many individual factors and therefore vary from person to person. Clear, achievable goals should be set at each visit to allow patients to see that success is achievable and to give some positive feedback once reached.

The most important method to combat sedentary behaviours is public education. There are many educational resources,

physical activity guidelines or websites. The Physical Activity in the Prevention and Treatment of Disease (FYSS) guidelines from Sweden are an excellent resource and recommend spending at least 30 minutes each day doing physical activity as part of routine daily living, at an intensity that allows you still to be able to talk while performing it. Another approach to achieving the therapeutic effects of exercise is to reach the minimum 30 minutes of physical activity daily, in several shorter 10-minute sessions. This protective and curative dose of prescribed exercises helps control most major diseases such as diabetes Mellitus, asthma, osteoarthritis etc. Many of these valuable educational resources, based on scientific and evidence-based approaches for the general population can be found on the Namat website (www.namat.qa).

Busy clinics and short consultation times are the norm both in general and specialist practice and may be the most important reasons why physicians or allied healthcare professionals are prevented from giving physical activity consultation and exercise prescription.

Healthcare practitioners should be properly trained to prescribe exercise training, which will assist in shortening physical activity counselling time, raising healthcare practitioner awareness of the importance of physical activity and a wider distribution of PA counselling among healthcare practitioners.

Aspetar hospital meets this fundamental need by offering short accredited courses for physicians and allied healthcare providers on exercise prescription. For further details contact the Exercise Is Medicine department at Aspetar.

SUMMARY

Levels of physical inactivity around the world have increased alarmingly over the last few decades, leading to an epidemic of NCD. Sedentary lifestyle is an independent risk factor for NCD whether or not other associated cardiovascular risk factors are present and applies to both those who are overweight as well as those of 'normal' weight. In other words being thin does not offset the negative effects of being physically inactive – it is better to be fat and fit than thin and unfit. Although the dangers of physical inactivity are well known, the traditional method of directing patients to increase their physical activity levels has proven largely ineffective. There is an urgent need to identify ways to implement programmes to increase physical activity in the general population. The State of Qatar National Physical Activity Guidelines were published in 2014 and are a valuable resource for practitioners, physicians, educators and individuals who wish to prescribe or engage in regular physical activity.

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