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Review article

Start with reducing sedentary behavior: A stepwise approach to physical activity counseling in clinical practice

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ABSTRACT

Recently, sedentary behavior recommendations have been included in the public health guidelines of multiple countries, pointing to new opportunities for prevention of chronic disease as well as a potential strategy for initiating long-term behavior change.
Objective: To propose an evidence-informed approach to physical activity counseling that starts with a focus on reducing sedentary time.
Methods: We put forward a case for addressing changes in sedentary behavior in clinical practice using a narrative review. We also propose a new approach for the assessment and counselling of patients with respect to movement behaviors.
Results: There is evidence to support a stepwise approach to physical activity counseling that starts with targeting sedentary behavior, particularly in those who are highly sedentary, or those who have chronic disease, or physical impairments.
Conclusions: Our approach encourages clinicians to consider sedentary behavior counseling as a critical first step to physical activity counseling. For many patients, this initial step of reducing sedentary behavior could build a pathway to an active lifestyle.
Practical Implications: A shift from long periods of sedentary time to daily routines incorporating more light intensity physical activity could result in meaningful health improvements. Importantly, this approach may be more feasible for highly inactive patients.

Contents

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1. Introduction

Over the past several decades, the prevalence of chronic disease has increased dramatically [1]. Multimorbidity is common and increases with age, with as many as 13% of young adults and 95% of older adults having two or more chronic conditions [2]. Chronic conditions are associated with premature death and disability [3–5]. The increasing onset and severity of numerous chronic conditions can lead to significant personal, public health, and economic impacts [6].

One well-accepted approach to reducing the incidence and progression of chronic disease is regular physical activity. Physical activity broadly refers to any bodily movement by skeletal muscles that requires energy expenditure. Moderate-to-vigorous intensity physical activity is what is most often studied, and is any physical activity above 3 metabolic equivalents; it typically involves activities that can range from brisk walking and activities of a comparable intensity, through to running and other activities involving heavy breathing and perspiration. By contrast, light intensity physical activity is between 1.5 and 3 metabolic equivalents, and usually includes activities of daily living or activities that can be just above resting energy expenditure.

Physical activity is fundamental to maintaining optimal health [7]. It has been adopted by clinical practice guidelines and promoted in clinical practice for many conditions due to the potency of its effect on health-related outcomes. However, despite several decades of public health initiatives, physical activity participation remains disappointingly low [8,9]. Lack of time, lack of access, lack of knowledge, and fear of injury are commonly cited constraints to engaging in physical activity [10,11]. Although physician-led physical activity counseling can be effective for some, it generally does not lead to sustained behavior change among patients [12]. Those who are fortunate to have access to supervised exercise programs such as cardiac rehabilitation, are often unable to adhere to an active lifestyle when moving to an unsupervised program [13]. Furthermore, those with certain chronic conditions may not have the capacity to engage in physical activity, particularly at moderate intensity, especially since many chronic diseases have associated physical limitations. For these reasons, a primary focus on moderate-intensity physical activity and exercise may have limited benefits in clinical care settings, especially without structured supervision and guidance.

A growing body of scientific literature in adults indicates that excessive sedentary time is hazardous to health [14,15]. Sedentary behavior is defined as any activity performed in a seated or reclined posture that requires low energy expenditure (< 1.5 metabolic equivalents) [16]. It includes the total amount of time a person spends sedentary, as well as the number of uninterrupted bouts spent sedentary. Sedentary behavior is distinct from physical *in*activity, as it is possible to engage in recommended amounts of daily moderate-to-vigorous intensity physical activity and still accumulate a high volume of sedentary time. For example, an office worker may exercise in the morning but then proceed to sit in a car and at a desk for the remainder of the day. Accumulating many consecutive hours of sitting has become common for a large proportion of the population [17,18].

A movement pattern in which individuals sit for prolonged and uninterrupted periods is likely to be particularly detrimental to health [19,20]. In addition to increased risk of cardiometabolic conditions and premature mortality [15,21], adverse associations have been noted with important health indicators such as lung function [22], cognitive function [23], and physical function [24]. High levels of sedentary time (8–10 h per day) are associated with heightened health risk among those with low/insufficient physical activity [25]. Although habitual physical activity may offer some protection, evidence suggests that high volumes (> 400 min per week) of moderate-to-vigorous intensity physical activity are necessary to attenuate the risks related to excessive sedentary behavior among adults [26]. Unfortunately, some device-based estimates suggest that fewer than 10% of the population are getting even the minimum recommended levels of 150 min of weekly moderate-to-vigorous intensity physical activity [27].

The inter-relationship between physical activity and sedentary time is increasingly being addressed in public health guidelines and policies [28], however, only 10% of patients in primary care clinics receive advice to reduce their sedentary time [29]. Based on current literature, we propose that clinical counseling approaches related to physical activity may need to initially place greater emphasis on addressing the inter-relationship between sedentary behavior and physical activity, particularly for those with chronic disease and those who are physically inactive. The message "*sit less and move more*" may help activate patients along the pathway to an active lifestyle [30]. This approach may ultimately lead to a greater increase in total physical activity [31], and would be particularly beneficial among those who are currently inactive [32]. In the context of the relevant evidence on the benefits of changing sedentary behavior, we present a model describing a stepwise approach to building physical-activity behavior changes on initial changes in sedentary behavior. We also propose some tools and strategies that could be used in clinical practice to support this approach. The aim of this paper is to propose an evidence-informed approach to physical activity counseling that may facilitate the initiation of activity and promote long-term behavior change among those who are currently inactive, through starting with a focus on reducing sedentary time.

2. Starting with reducing sedentary time: the evidence

Our approach to covering the relevant evidence did not include a systematic search of the literature. Thus, our review would be classified as narrative review or commentary style [33].

2.1. Adults and older adults

In 2016, the WHO estimated that 1.4 billion (27%) adults were insufficiently active [34]. Notably, levels of physical inactivity are particularly high and steadily rising in high-income countries, most likely a consequence of the transition towards more sedentary occupations and the proliferation of motorized transportation. Recent studies have shown that adults from high-income countries are sedentary for ~8.5–11.5 h per day, with the estimated time spent sitting in the U.S. population increasing by approximately 1 h per day between 2001 and 2016 [17,31].

There is a growing interest in the health effects of reducing sedentary behavior, with a number of RCT and RCT protocol papers on sedentary behavior interventions being published annually. From the RCTs available to date, small improvements have been noted in

cholesterol levels among cardiac rehabilitation patients [35], fasting plasma glucose among parents of young children[36], back pain among office workers [37], and teleomere length in older adults [38]. Moreover, longitudinal data from large databases have shown significant associations between sedentary time and important health outcomes. Insights from studies using isotemporal modelling approaches indicate that replacing increments of sedentary time (30–60 mins) with either light or moderate-to-vigorous intensity physical activity is beneficially associated with all-cause and cardiovascular mortality and cardiometabolic risk markers, particularly among less active adults (n = 17,390)[39]. Further, a recent meta-analysis of experimental and observational studies has concluded that light-intensity physical activity could play a role in improving adult cardiometabolic health and reducing mortality risk [40].

Thus, the suggestion to *sit less and move more* has relevance for many adults, especially among those with existing chronic disease or physical impairments. Using the example of type 2 diabetes (T2D) in adults, and impaired mobility in older adults, below we will make the case that reducing sedentary behavior may induce important improvements in health.

2.1.1. Example 1: Type 2 diabetes in adults

Estimates indicate that 75% of adults with T2D do not achieve the minimum physical activity recommendations; a third of patients do not undertake any physical activity [41]. Those with T2D spend ~10 h of their waking hours sitting [42] despite evidence that suggests that time spent in sedentary behavior is associated with poorer glycemic control [43]. The merit of reducing sedentary time for T2D management is further highlighted by a review of experimental studies showing that interrupting prolonged sitting with frequent short bouts of light-intensity physical activity can lead to substantial reductions in acute post-meal glycemic responses [44] and can improve 24 h glucose levels more than structured exercise bouts [45].

The 2016 position statement from the American Diabetes Association acknowledged that reducing and interrupting sedentary time is likely to have important benefits that are in addition to the benefits of physical activity [46]. Furthermore, despite acknowledging the limitations in the available evidence (Level C; the lowest grade), the guidelines have incorporated specific quantitative recommendations on how often sedentary time should be interrupted in the context of T2D management, stating that 'prolonged sitting should be interrupted with bouts of light activity every 30 min for blood glucose benefits, at least in adults with type 2 diabetes'.

Notwithstanding the motivational considerations that can also affect the general population, there are many significant barriers faced by those with T2D that can make it impractical or largely unachievable to meet the current public health physical activity recommendations including: the presence of comorbidities, physical disabilities and diabetes complications (e.g.: peripheral neuropathy), low exercise tolerance, sarcopenia, muscle weakness, daytime fatigue, low self-esteem, and reduced functional mobility [47–49]. Thus, *starting with a focus on reducing sedentary time may be more effective in improving health outcomes and long-term behavior change. A recent meta-analysis showed that sedentary behavior reduction trials lead to significant daily reductions in sedentary time (30 min per day)* [50], while another meta-analysis of free-living interventions targeting sedentary behavior reductions alone, or in combination with increases in physical activity, showed small but significant beneficial effects on weight (~ −0.6 kg), waist circumference (~ −0.7 cm), percent body fat (~ −0.3%), systolic blood pressure (~ −1.1 mmHg), insulin (~ −1.4 pM) and HDL-C (~ 0.04 mmol/l) [51].

2.1.2. Example 2: Impaired mobility in older adults

According to device-based estimates, less than 5% of older adults in North America meet the minimum recommendations for physical activity [27,52]. Adults over the age of 65 accumulate more sedentary time than any age group [27,53] an average of 9.4 (±1) hours/day [54]. Sedentary time is also higher among older people with impaired mobility compared to those with no functional limitations [55,56] and excessive sedentary time may accelerate functional decline. A regular routine of planned physical activity is an effective strategy for maintaining and improving physical function among older adults [57,58]. However, some older adults, especially those with mobility limitations, may not have the capacity to engage in moderate-to-vigorous intensity physical activity. This group may benefit from reducing sedentary time.

A cross-sectional study of older residents living in a retirement home showed that every additional hour of sedentary time accumulated was associated with older adults requiring 21 s more to complete a 400 m walk and a 0.55 lower score on the short physical performance battery [59]. These values are clinically meaningful and are associated with changes in mobility. Even changing the pattern of sedentary time could have benefits, as a greater number of interruptions in sedentary time is associated with better functional outcomes [60]. Sardinha et al. found that taking fewer than 7 breaks per hour of sitting time was associated with 2–5 fold greater risk of functional impairments in activities of daily living [61]. Importantly, preliminary evidence suggests that older adults who increase breaks in sedentary time may subsequently have greater interest in physical activity [62].

While much of the available evidence is from observational studies and mostly cross-sectional, a few trials have shown encouraging results. In a 12-week randomized trial of older adults, a significant increase in lower body function (chair stands) was observed among older adults in a sedentary reduction group compared to a physical activity group [63]. Two trials in nursing homes have shown that simply increasing the number of sit-to-stand transitions and including more independent self-care activities can delay functional decline and improve mobility among residents [64,65]. Thus, while there is a need for more RCT evidence, available studies suggest that small increases in movement can have beneficial effects on older adults with functional impairments. Recommendations to reduce and frequently interrupt sedentary time may be a more reasonable starting point for changing movement behaviors in older adults, especially those with limited mobility.

2.2. Adolescents and young adults

Globally, 81% of 11–17 year olds were classified as insufficiently physically active in 2010 [66]. A longitudinal analysis of the International Children's Accelerometry Database showed an annual increase in sedentary time of 21 min per day on average, with baseline values at study level varying between 246 and 387 min per day [67]. Similarly, device measured sedentary time in young adults in Canada indicates that men and women between 20 and 39 years are accumulating 570 min of sedentary time per day [27]. The World Health Organization (WHO) suggests that two thirds of premature deaths in adults are associated with conditions and behaviors common in youth [68]. Thus, although youth and young adults have a lower prevalence of chronic disease, the behaviors they engage in during this period increase their risk of developing chronic conditions at an earlier age.

There is a significant body of literature supporting the health benefits of moderate-to-vigorous physical activity among youth and young adults, however, adherence to physical activity programs remains suboptimal [69]. Although sedentary time is important for a number of health outcomes in adolescents and young adults, the evidence at this time may not be strong enough to warrant a shift in focus from interventions targeting increases in moderate-to-vigorous physical to sedentary behavior reduction [70], particularly

among healthy youth and young adults. Among some sub-groups however, reducing sedentary time may provide an appropriate introduction to increasing overall levels of physical activity. For example, adolescents and young adults with obesity, arthritis, or cancer may experience some exercise intolerance; initially targeting sedentary time may be more suitable than focusing on moderate-to-vigorous intensity physical activity.

3. Starting with sedentary time: a behavioral counseling approach

The literature clearly indicates that goals should be specific, measurable, attainable, realistic, and timely [71,72]. White and colleagues (2020) propose an updated model of goal setting called SMART-EST goals, which highlights that SMART goals should also be Evidence-based, Strategic, and Tailored to the patient [73]. For people living with chronic conditions or functional limitations, engaging in moderate-to-vigorous physical activity simply may not be attainable. Based on the evidence reviewed in Section 2, we propose that reducing sedentary behavior is an evidence-based goal that is attainable for almost everyone, and may be a more strategic and tailored approach for many patients. As first suggested in the pyramid model by Franklin et al.[74], there is strong scientific merit in rethinking the initial steps taken for the promotion of physical activity.

Effective, long-term behavior change, such as the adoption and maintenance of moderate-to-vigorous intensity physical activity is a process that requires ongoing motivation and confidence (self- efficacy) [75–77]. The Transtheoretical Model [78] addresses this, by first considering the level of motivation in relation to changing behavior. This is within the initial stages of behavior change, which are characterized as pre-contemplation and contemplation; here, the advantages and disadvantages of change are addressed. Taking into account potential ambivalence towards adopting physical activity is a basic precursor for behavior change [77]. Starting with changing sedentary behavior potentially provides a different perspective on physical activity adoption, in which the perceived downsides of physical activity may be less likely to operate as barriers. Within the transtheoretical model, the initial pre-contemplation and contemplation stages are followed by the stages of preparation and action, in which specific plans for behavior change are made and followed through; subsequently, there will be longer-term maintenance of change, and not infrequently, relapse back to previous habits [78]. Understanding these levels of motivational readiness can provide helpful guidance in dealing with patients in ways that are relevant and appropriate [79]. Motivational interviewing techniques will be helpful for clinicians when intervening on lifestyle changes such as reducing sedentary behavior and increasing physical activity [80]. We suggest that less motivation and self-efficacy is required to reduce sedentary behavior, making it a more attainable starting point for many patients.

For those working with patients who may benefit from starting with a reduction in sedentary behavior, we propose a ***sedentary behavior counselling approach***. This approach is specifically intended to help support the many patients who are at the highest risk – those who are physically inactive but also accumulate high volumes of daily sedentary time. The intention is to assist with the adoption and maintenance of reductions in sedentary behavior as an initial step towards increasing physical activity.

In order to determine whether this approach is appropriate for a specific patient, a simple screening tool (Fig. 1) could be employed to determine the patterns of sedentary time and physical activity of the patient in order to ascertain which behavior should be targeted for counseling. While there are data available on the minutes of sedentary time and physical activity required to categorize individuals based on risk, these numbers are likely to vary considerably for different health outcomes. A more general approach may be appropriate at this time, however, as evidence develops for specific chronic diseases, these general categories can be quantified using device-based measures. Overall, those who sit for significant periods throughout the day may require some counseling to aid with interrupting prolonged bouts of sedentary time, which may lead to an increase in short bouts of physical activity.

Those who identify themselves in the first column (orange) in Fig. 1 may require a ***step-wise approach*** to physical activity counseling that begins with ascertaining sedentary behavior goals. Starting with Step 1 (Fig. 2) and thereafter working up the staircase to Step 4, with each step being indicative of the *goal*, may facilitate greater success. This contrasts with what might be characterized as an overly-ambitious ***elevator approach***, whereby a patient might be encouraged to transition from their current sedentary lifestyle to Step 3, that is, moderate to vigorous physical activity. However, it should be noted that this elevator approach may be appropriate for some, such as otherwise healthy adolescents and young adults who have the capacity to immediately integrate moderate intensities of physical activity into their routine.

Among those who are older, or who have existing morbidity, the use of the staircase approach may assist with enhancing initial acceptance and tolerability for being more active on the part of the patient, and as a consequence, may help to promote more-sustainable behavior change. Once a patient has successfully adopted and maintained changes in sedentary behavior, further encouragement should be provided to progress to Step 2. Success in each step requires an individual approach. For example, a younger patient with T2D who works in a sedentary workplace may be ready to move to Step 2 when they are able to walk for 2 min every 30 min at work; for an older adult with mobility impairments, moving to the next step may be feasible when they have been able to incorporate 2–5 sit to stand transitions every hour. This highlights the need for population specific targets that could be created by clinical practice groups with full consideration of the physiology of the condition, as well as the relevant considerations of the patient population. In the absence of this population specific data, clinicians could use the Physical Activity Guidelines as a guide to success in each step. Steps 1 and 2 may be inter-related as suggested in the darker box, as patients with higher abilities may be recommended to replace sedentary time with light intensity activity; however, among those who are significantly deconditioned, simply increasing sit to stand transitions or breaking up prolonged bouts of sitting time may be suggested as initial targets. Furthermore, a goal of Step 2 is to increase the duration of light intensity bouts beyond those attained in Step 1.

This aligns with the contemporary understanding of behavior change by starting with small changes that are likely to be adopted and maintained over the longer-term [81]. Another advantage of this approach is that initiating the process of increasing activity with sedentary behavior counseling does not require a risk assessment similar to the American College of Sports Medicine Risk Stratification [82], as the risk of reducing sedentary time is less than the risk associated with remaining sedentary. In other words, the risk of cardiovascular event or a musculoskeletal injury are low when the goal is to reduce sedentary behavior. Time consuming and costly prescreening requiring graded exercise testing is not necessary for this approach.

For many people there are abundant opportunities in the day to interrupt prolonged bouts of sedentary time. Table 1 presents some strategies that can be suggested by the clinician when counseling patients. Recommendations are provided for the four domains in which sedentary time is accumulated, including household,

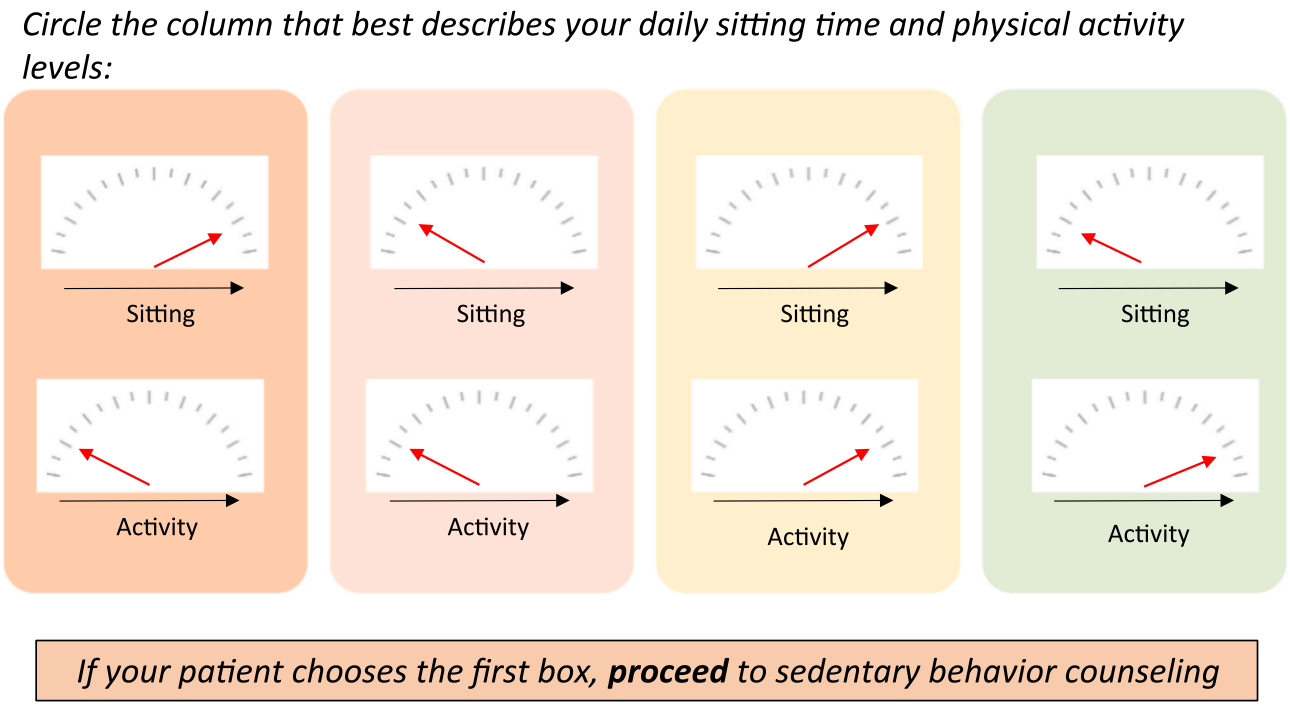


Fig. 1. A screening tool to identify patients that can benefit from sedentary behavior counseling.

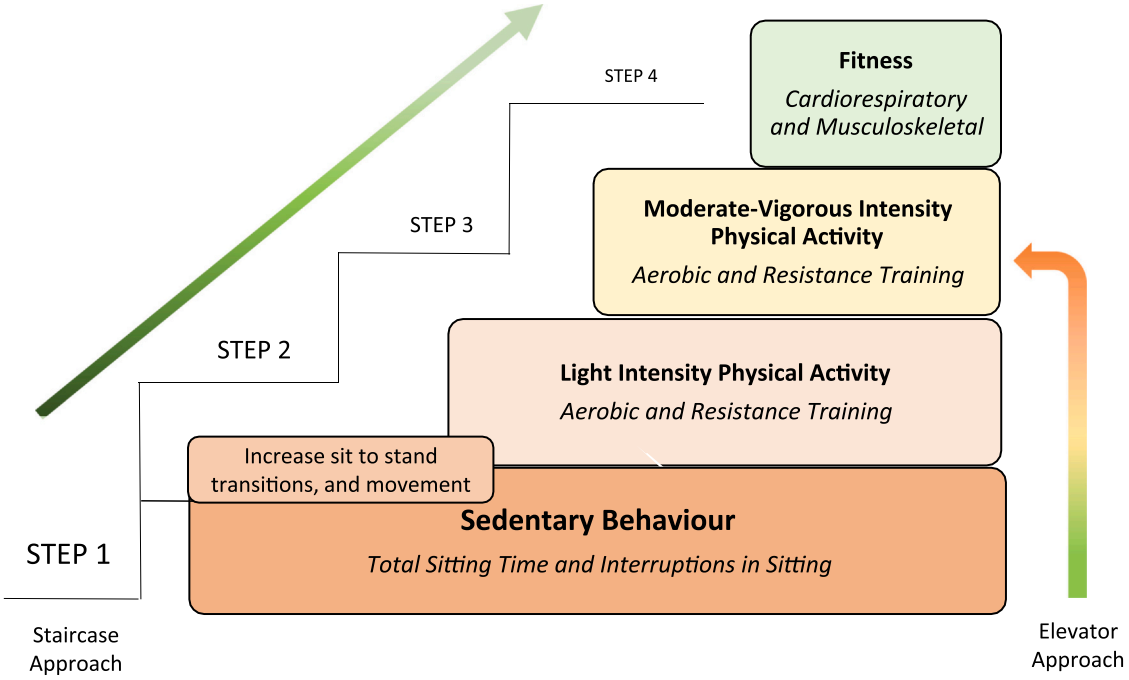
occupation, leisure, and transportation [83]. Table 2 builds on Table 1 using examples across the lifespan and showing that different strategies may be appropriate for different patients. There are several evidence-based behavior change techniques that can be used to further individualize counseling [84].

Thus, we suggest that clinicians could introduce this model using motivational interviewing techniques to understand the self-efficacy and stage of change with regards to physical activity in their patients. Fig. 1 can be used to help understand the patient's current movement patterns which will then guide the clinician to focus on using either a staircase approach or the elevator approach outlined in Fig. 2. Thereafter, patients could be provided with appropriate interventions using previously created manuals, or the tables from this paper. We are cognizant that time is often a barrier for clinicians working with patients; the critical point to emphasize when initiating this conversation with inactive patients is to start with a focus on interrupting sedentary time with short periods of standing and moving, and gradually move towards moderate or vigorous intensity physical activity.

4. Discussion, conclusions, and practical implications

4.1. Discussion

Supervised exercise programs and physical activity-focused behavior change techniques lead to initial increases in activity levels, but maintenance of physical activity often presents major challenges. While new international and national physical activity guidelines are addressing the importance of reducing sedentary behavior, they all recommend simultaneous increases in moderate-vigorous physical activity [85,86]. For many people living with chronic disease, this requires a significant change in lifestyle, and presents challenges for some patients in sustaining long-term behavioral changes. The stepwise model that we have proposed is informed by a recent and rapidly-developing body of evidence on the adverse consequences of too much sitting time and is in line with these new guidelines. The novelty of our proposed framework lies in choosing an attainable starting point for patients that are not currently able, for any number of psychological or physical reasons, to



Counseling for those who accumulate a large volume of daily sitting time and are physically inactive should begin with an emphasis on reducing total sedentary time and increasing interruptions in sedentary time, before progressing to a focus on increasing physical activity levels (staircase approach).

Fig. 2. A stepwise approach to reducing sedentary behaviour in the context of physical activity counseling within clinical practice.

Table 1
Examples of strategies to reduce sedentary time among patients across various domains.

Household	Occupational	Leisure	Transportation
Conduct household chores throughout the week to interrupt sitting time.	If possible, acquire a standing desk and take regular standing breaks.	Increase your light intensity activities such as walks or yoga.	Walk or cycle to local stores or appointments.
Stand while chatting on the phone, or during commercials on TV.	Stand during phone meetings, or during in-persons meetings.	Increase moderate intensity activities such as jogging, cycling, or gardening.	Walk or cycle to school or work.
Set a time to stand up and move every 30 min.	Take the stairs instead of the elevator.	Increase vigorous intensity activities such as running, team sports, or resistance training.	Use public transportation more often.
	Set up walking meetings with colleagues.		

Should aim to have interruptions that are 2 or more minutes [17]

engage in moderate intensity physical activity. As we have shown, few clinical practice guidelines address the concept of breaking up sedentary time with standing and moving, yet there is growing evidence that this relatively simple change can have significant health benefits among low active individuals. Furthermore, this more gradual approach to physical activity behavior change may result in better success in the long term.

4.2. Future directions

Randomized controlled trials are needed to determine the effectiveness of the proposed "staircase" approach in the clinical setting and whether it is superior to the elevator approach. Furthermore, research is needed to identify doses of sedentary time that impact health and quality of life outcomes in specific clinical populations, to aid with creating initial targets in Step 1. As the understanding and applications of approaches to sedentary behavior develop through research and clinical practice, further refinements of the relevant terminology will be needed, particularly in making conceptually-consistent distinctions between aspects of movement and non-movement. Differentiated approaches, and different terminology, are likely to be needed for particular groups such as middle-aged adults for whom cardiometabolic disease risk is the central issue, compared to what will be relevant in the case of older adults for whom frailty is most-central. Importantly, work is needed to assess understanding and acceptability on the part of patients, which will be crucial in promoting uptake by clinicians. This will be important ground work as part of the research and practical applications need to determine whether sedentary behavior counseling in clinical settings is a feasible option for targeting behavior change related to physical activity.

Table 2
Examples of population-specific sedentary behavior counseling goals and strategies.

Population	Goals	Strategies	Rationale
Adolescents and Young Adults – High Risk	Increase physical activity:*Try to increase the amount of light, moderate, or vigorous intensity physical activity you do per day.*	Daily routine:*Switch from seated video games to ones that require you move or dance.*Social Settings:*Schedule physical activities such as playing soccer or skateboarding together with friends.*	Evidence suggests that increasing physical activity is important for both physical and mental health, and NCD prevention. Thus, adding more physical activity to one's daily routine should be the focus in this age group.
Adolescents and Young Adults – Cancer	Limit total sedentary time:*Try to limit the total number of hours you spend sitting per day to 4–6 h.*	Social Support:*Meet with friends to go for a 'walk and chat' in the afternoons.*	Evidence suggests that remaining physically active is important for improving fatigue outcomes. Thus, replacing sedentary time with light intensity physical activity is an important focus for this population.
Adults – Type 2 Diabetes	Interrupt sitting time often: *Stand up every 30 min and engage in some ambulatory activity, such as walking, for at least 3 min.*	Wearable technology: *Set your wearable device to beep every 30 min as a reminder.* Walking Meetings:*Schedule some walking meetings throughout your day.*	Evidence suggests that interrupting prolonged bouts of sitting leads to improved glycemic control and insulin sensitivity. Thus, one focus for this population is on interruptions.
Older Adults – poor mobility	Stand up often:*Stand up regularly; transition from a seated to standing position five times every hour.*	Social Settings:*Incorporate standing transitions into your social circle. For example, stand up to put your cards down when playing bridge, or stand up on every commercial when watching TV.*	Evidence suggests that transitioning from sitting to standing positions can provide a stimulus for improved mobility and lower body muscular strength. To ensure functional independence, sit to stand transitions should be increased as much as possible.

4.3. Conclusions

Although physical activity is an important component of chronic disease management [87], the primary focus on moderate-to-vigorous intensity physical activity through a 'one size fits all' approach may have limited benefits, especially since many chronic conditions are associated with physical limitations, chronic comorbidities, and low adherence to exercise programs. Reducing total sedentary time and interrupting prolonged bouts of sitting with short bouts of movement may be a helpful starting point for long-term behavior change related to physical activity. Sedentary time is rarely included in clinical practice guidelines [88] even though focusing on reducing sedentary time may be an important first step towards adopting an active lifestyle for many sedentary patients. Public health initiatives have embraced the integrated message to "sit less and move more" for the general population; we suggest that this approach may also be a good option in clinical practice.

4.4. Practical implications

There is one primary implication of the work presented in this paper, that is, to shift the focus of physical activity counseling to initially target sedentary behavior, particularly among those who are inactive, highly sedentary, or those who have chronic diseases or physical impairments. Presented in this paper are several tools that can aid the clinician in initiating a change in their counseling approach with patients. While this approach is informed by the evidence, future clinical research is needed to determine the effectiveness of the proposed stepwise approach.

CRediT authorship contribution statement

All authors contributed significantly to conceptualization, writing of the original draft, as well as writing- reviewing and editing the final manuscript.

Competing interests

None of the authors have any competing interests to declare.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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