



HUMAN POTENTIAL CENTRE
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Response to Draft Physical Activity Guidelines

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Thank you for the opportunity to make comment on the draft physical activity guidelines. We value the chance to discuss and contribute further.

Included in this document are a set of evidenced-based amendments for consideration. Whilst we are in agreement with aspects of the draft guidelines, we recommend that several amendments are made to ensure the guidelines are not only evidenced-based but also offer a palatable message to the public. For this reason, we strongly recommend that the physical activity guidelines avoid quantification, especially of time, making them more consistent with the dietary guidelines. Below is a summary of the recommended amendments, followed by detailed explanations and evidence for the proposed changes.

Guideline 1:

We simply suggest the inclusion of the phrase “try a standing desk” within the proposed longer guideline, perhaps fitting well after the point on sitting a lot at work.

Guidelines 2 and 3:

Our suggestion to replace Guidelines 2 and 3:

Moving is essential to human health, even low intensity activities as part of your everyday life count. The more activity you can incorporate into your day the better.

Extra benefits for health and wellbeing can be achieved with a small amount of more structured exercise that should include some higher intensity and resistance type training. For example, try 1 minute of exercise that you find is quite intense, to the point where you are breathing very hard, then do 1 minute of very light exercise such as a very slow walk. Repeat that a few times in a row.

Regular steady exercise such as brisk walking or jogging also provide extra health benefits in addition to regular movement and activity.

Activity and exercise as recommended above, when combined with good nutrition, is most effective for weight loss and general health.

**If you have, or suspect you might have a medical condition that may be affected by harder exercise consult your GP first*

Guideline 4:

We recommend that Guideline 4 be worded similar to:

Include some muscle- and bone-strengthening activities once or twice a week.

Muscle and bone strengthening activities help greatly with your general health and prevention of diseases such as diabetes, and are important for keeping your body strong for life activities, and reducing the risk of falling or injury.

Strengthen your muscles and bones with resistance activities such as resistance training in a fitness centre, bodyweight exercises at a park or home, walking up and down hills or stairs, and heavy gardening.

Guideline 5:

We agree with this guideline.

Guideline 1: Sitting and sedentary behaviours

The inclusion of the guideline specifically around reduction of total sitting time is important. The evidence is consistent in that movement is essential to health and wellbeing. Given the ubiquity of workplace sedentariness, we suggest also including the recommendation of trying a standing desk in the workplace. Specialist equipment is not requisite. Spare coffee tables or basically constructed desktop tables function very effectively. Standing desks could offer an expedient option towards the reduction of total sitting time and the associated improvements in metabolic health.

Guidelines 2 and 3: Duration and exercise intensity

It is good to see the inclusion of intensity as a potent component of general physical activity. More intense physical activity confers health benefits beyond those of simply moving more at lower intensities, and exercise-induced improvements in metabolic conditions such as insulin resistance are influenced to a greater extent by exercise intensity than duration [1].

Hence we think that intensity could be more concisely offered in the draft guidelines.

Given that perceived time poverty is a perceived barrier to exercise, (empirically and anecdotally) [2] providing specific yet simple advice on modalities to achieve increased intensity could be included. So-called high-intensity intermittent training is a time-efficient and well-tolerated method to improve cardio-metabolic health in a range of symptomatic and asymptomatic populations [3]. There is also good evidence that a small number of brief bursts of higher intensity activity are effective and tolerable [4]. The range of brief intermittent protocols that have been proven in well designed randomized controlled trials to be at least as effective as longer duration steady state exercise could be specifically but simply communicated. It is reasonably conceivable that a public health message mandating the efficacy and time efficiency of such a modality could serve to expedite the acceptance of exercise to those who consider themselves time poor. That is, those who are overwhelmed by the perceived magnitude of the time commitment needed within current recommendations may perhaps be more likely to participate in exercise if the stated requisite time is less. It would seem people who don't currently adhere to the recommended minimum 30 minutes of continuous exercise are very unlikely to ever commit to even greater total weekly duration. A new approach is needed.

Such information could be kept palatable to a lay public in line with other exercise guidelines. The recommendation would remove the need to communicate total time commitments, and rather focus on achieving consistent general activity, augmented with some form of vigorous exercise and resistance training. The proviso of requisite medical clearance if any pathology is known or suspected would remain.

A major objection we have around the guidelines are the time-based recommendations positioned for weight loss / weight loss maintenance

The time-based activity recommendations assume that greater total exercise duration is a legitimate and independent strategy for reducing weight. Evidence does not support this, at least evidence that would be considered robust enough to make public health recommendations. We agree that there is evidence that adding exercise to weight loss programs is likely to provide some extra benefit over diet only weight loss programs (see Wu et al. [5] for a meta-analytic review). However, exercise as an independent factor in weight loss is less convincing. For example in a systematic review and meta-analysis of 14 RCTS using 6-12 months exposure to aerobic exercise Thorogood et al. [6] concluded "Our results show that isolated aerobic exercise is not an effective weight loss therapy in these patients. Isolated aerobic exercise provides modest benefits to blood pressure and lipid levels and may still be an effective weight loss therapy in conjunction with diets".

The complex interplay between physical activity, insulin and other hormonal (including leptin) sensitivity and weight is complex. What is likely is that there are considerable variations in how individuals respond to exercise and macronutrient profiles in appetite control, the regulation of physical activity and so forth. It is possible that exercise contributes to appetite regulation [7] although the mechanisms are less clear. As a simple “energy in energy out” hypothesis, the biological data support the case for a more complex system where low physical activity may itself be the outcome of metabolic ill health rather than a direct and independent cause in the first instance. Much more work is needed to understand this complexity.

We therefore contest that the data are not yet robust enough to suggest an independent and time-based goal for weight loss and weight loss maintenance for the public. Instead it might be plausible to note that physical activity contributes to successful weight loss and weight loss maintenance over and above diet only approach.

There are however, epidemiologic, cross-sectional, and prospective studies which show a hypothetical role for physical activity in weight-loss maintenance. Analysis of prospective trials show a plausible dose-response relationship between physical activity and weight maintenance [8]. Whether this can be inferred to also cause weight loss is unclear. The RCT evidence of exercise only interventions is limited (see above). Methodological issues such as the self-report and self-selection bias on the U.S. based National Weight Control registry database confound our confidence in the public message of total exercise duration being fundamental to fat loss. The ACSM's 2009 position statement on appropriate physical activity intervention strategies for weight loss and prevention of weight regain for adults acknowledges the limitations in current research [9], but proceeds to recommend a dose response relationship between total physical activity duration and weight control. Conceivably the public interpretation of ‘moderate intensity’ may be an underlying issue. The 3–5.9 METS range represents approximately 12-13 on a 6-20 rating of perceived exertion scale (fairly light to somewhat hard), or ~64-76% of age predicted heart rate maximum. Performing consistent and substantive duration low level activity at ~64% HR max is arguably a much more palatable and achievable target than 76% HR max where typically some intentional structured activity (such as a steady hard walk) may be needed. Given the acknowledged effectiveness of interruptions to sedentariness and intermittently accrued total activity, it may be that targeting simple increased general PA, rather than communicating the moderate intensity mantra is needed. In other words, plenty of purposeful and mindful general activity threaded through day-to-day life, then add some degree of structure and intensity for a brief but potent dose of exercise to augment general activity. Individuals who prefer to engage in exercise at the higher end of the moderate intensity spectrum will of course experience positive benefits too, but we expect such individuals are not the key targets of the public health recommendations.

We propose a more innovative, and perhaps timely interpretation of the time-based physical activity guidelines. We do so on the basis that the current time-based guidelines do not match any known objective measures of physical activity.

Relying on self-reported epidemiology which is fundamentally flawed as an accurate measure of human movement has the potential to render the time-based guidelines meaningless and expose the underlying issues with this measurement paradigm.

Guideline 4: Resistance training

The scope of muscle and bone strengthening modalities are a little misleading in our opinion. Position statements and guidelines such as the American College of Sports Medicine (ACSM) 2011 pronouncement on the quantity and quality of exercise for developing and maintaining cardiorespiratory, musculoskeletal, and neuromotor fitness in apparently healthy adults for example [10], allocate the highest category of supporting evidence to the efficacy of resistance training on a broad range of health and metabolic outcomes. The guidelines then provide very specific parameters for resistance training as a modality, centered on structured, progressive, loaded training.

We acknowledge that 'resistance training' is a modality that may be performed in a variety of settings, but disagree that some of the currently listed activities within the guidelines such as swimming, certain forms of yoga, certain forms of pilates, or indeed many forms of 'aerobics' constitute effective muscle and bone strengthening options. That is, they probably do not meet minimum threshold loading for adequate training induced musculoskeletal adaptations. Great exercise options for sure, and it's good to communicate the varied context in which exercise can be enjoyed, but in our opinion these guidelines compromise the message for what constitutes effective stimuli towards the intended musculoskeletal adaptations associated with this recommendation.

We understand that some sectors of the general public may conceivably perceive structured resistance exercise as stigmatic, expensive, intimidating or simply not necessary for health. Resistance training need not cost, nor does it have to be conducted in a fitness centre. It is encouraging to see increasing prevalence of outdoor exercise equipment in public settings for example. There are also many home-based, or local environment options. We do strongly encourage the public to seek qualified advice from a Registered Exercise Professional for the safest and most effective way to achieve recommended resistance training guidelines; some structure and supervision is highly preferable.

References

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DRAFT ACTIVITY GUIDELINE STATEMENTS

1. Sit less, move more! Reduce sedentary behaviour and break up long periods of sitting.
2. Do at least 150 minutes (2 ½ hours) of moderate-intensity or 75 minutes (1¼ hours) of vigorous-intensity physical activity spread throughout the week.
3. For weight management and extra health benefits, aim to do at least 300 minutes (5 hours) of moderate- or 150 minutes (2 ½ hours) of vigorous-intensity physical activity spread throughout the week.
4. Include some muscle- and bone-strengthening activities on at least two days per week.
5. If you currently do no physical activity, start by doing some activity, and then build up to the recommended amount.

Draft Activity Guidelines Statements 2014 – including 'why' and 'how'

1. Reduce sedentary behaviour and break up long periods of sitting (sit less, move more).
 - Sitting less can help you live healthier and longer.
 - *Stand up and move regularly throughout the day, at least every hour.*
 - *If you are watching television, get up during the ad breaks.*
 - *If you sit a lot at work, get into the habit of getting up and moving at least every hour.*
 - *See standing and moving as an opportunity, not an inconvenience.*
2. Do at least 150 minutes (2 ½ hours) of moderate-intensity or 75 minutes (1 ¼ hour) of vigorous-intensity physical activity spread throughout the week.
 - Moderate- and vigorous-intensity activities are great for the heart, lungs, and overall fitness and wellbeing. Examples of these activities can be found in Table X
 - *Moderate-intensity activities cause a slight but noticeable increase in breathing and heart rate.*
 - *Vigorous-intensity activities significantly increase breathing and heart rate.*
 - *You can achieve this by doing 30 minutes of moderate-intensity, or 15 minutes of vigorous-intensity physical activity on five days per week.*
 - *If you have been physically inactive for some time, are just starting out, or have certain health conditions you may wish to consult a health practitioner or physical activity specialist to ensure your safety before you start being physically active.*
3. Aim to do at least 300 minutes (5 hours) of moderate-intensity or 150 minutes (2 ½ hours) of vigorous-intensity of physical activity for extra health benefits and to manage your weight.
 - If you already meet the guidelines, increase the amount of physical activity you do for extra health benefits.
 - *Double the recommended amount of time being active to reduce weight.*
 - *Increase the intensity of your activity for other health benefits including*
4. Include some muscle- and bone-strengthening activities on at least two days per week.
 - Muscle and bone strengthening activities are important for keeping your body strong, lifting and carrying, and reducing the risk of falling or injury.
 - *Strengthen your muscles and bones with resistance activities such as walking up hills or stairs, yoga, Pilates, swimming, aerobics, heavy gardening or weight lifting.*
5. If you currently do no physical activity, start by doing some activity, and then build up to the recommended amount.
 - Doing something is better than doing nothing.
 - *Walk or cycle to work, the marae or church, play actively with the children, meet friends for a walk, do active jobs around the house.*
 - *Build the activities into your daily routine that you are likely to stick to!*
 - *Consider joining a gym or sports club.*
 - *Set yourself goals to achieve.*
 - Being physically active with others is good for your overall wellbeing and can motivate you to stay active.
 - *Being physically active with whānau is good for the hinengāro (mental and emotional wellbeing) of tangata.*
 - *Do a variety of activities with whānau and friends that you enjoy and want to keep doing.*