

Using the
fitbit

Zone system to

- Prescribe
- Measure
- Manage &
- Monitor

aerobic fitness

Miller Health

- driving fitness into the frontline of primary health care -



Hi, I'm John Miller, Canberra (Australia) based physical educator, managing Director of corporate health company, Miller Health.

I conduct health, fitness and wellbeing programs and assessments for corporate organisations and individuals – all designed to inspire and motivate people to keep themselves fit and healthy to the best of their ability.

I write and publish books, videos and audio files on a range of health, fitness and wellbeing topics - which are distributed via the internet through a range of websites, in particular <http://www.fitandhealthyonline.com/>

My vaulting ambitions include

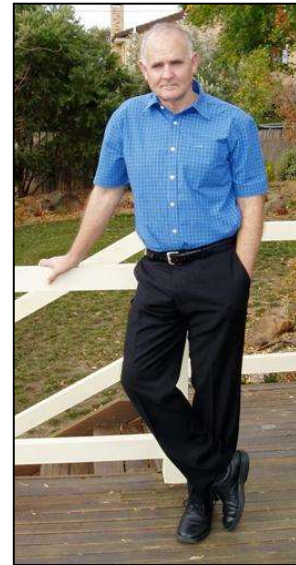
- the development of programs that drive the fitness industry into the frontline of primary health care and
- having the Fitbit zone system used universally to aid in the prescription, measurement, management and monitoring of aerobic fitness by the medical, fitness, nutrition and counselling industries.

I recommend the fitbit zone system as an essential element of a regular and systematic aerobic fitness training program.

I use it to keep track of the number of zone points I achieve each day and each week. I've worked out that 50 points a day is good, 75 better and 100 best. I've worked out that 300 zone points a week is a reasonable target.

I have several workouts during which I can score zone points:

- zone 1 - walking with my constant exercise companion, Honey
- zone 1 – 40 minute strength training workout in the gym
- zone 1 - gardening
- zone 2 - interval training on the local oval
- zone 2 - working out on my Johnson stepper



Honey

Aerobic Fitness - prescription, measurement, management and monitoring

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Miller Health Pty Ltd

john.miller@millerhealth.com.au

7 Salvado Place Stirling (Canberra) ACT,
Australia 2611

Ph: (02) 6288 7703

(61) 424 391 749



Using the Fitbit zone system to prescribe, measure, manage and monitor aerobic fitness



John Miller

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FOREWORD

Aerobic fitness is an essential ingredient in the mix of lifestyle factors designed to keep your metabolic (and mental) health systems in good condition. Lack of vigorous aerobic exercise is causing an epidemic of personally-generated metabolic dysfunction that only a regular and systematic aerobic exercise program can personally 'un-generate'.

We live in the sedentary age. We don't move enough. There's a war going on between our need to move more and more and technology which is working flat out, encouraging us to move less and less – removing just about all physical activity from our lives, particularly our working lives. Technology is winning, hands down.

So, if you can't put the exercise back into your work, then you're going to have to do it as a recreational activity in your own time. For that you need four things; **focus, discipline, persistence** and **habit**. We are creatures of habit: we make our habits, then our habits make us.

The Fitbit aerobic exercise zone concept outlines a way of 'doing' aerobic exercise that lets you know exactly how much you're doing and its metabolic (and mental) health value. Remember, what's good for the heart is good for the head.

The Fitbit aerobic fitness prescription dosage

The Fitbit zone concept contains an aerobic fitness prescription dosage, based on time (frequency and duration) and effort, rated against (estimated), age-related, maximum heart rate.

Using the Fitbit aerobic fitness zone system, you can set a daily/weekly target of how much aerobic exercise you plan to do, keep track of just how much exercise you're doing and let other people see what you're doing as well.

John Miller

LET THE ANIMAL RUN LOSE

When I was a kid, if someone was driving a car and you wanted them to go faster, you'd say, 'Give it the herbs'. The www.dictionary.com definition is, (*Australian Slang*) 'to use full power, especially in accelerating a car.'

In 1995 when I first dreamed up the idea of an aerobic fitness prescription based on time and heart rate, I thought that the name of the prescription ought to be 'herbs', first from the 'dictionary' definition and secondly in honour of one of the world's greatest athletes, Australian, Herb Elliott. The fact that in this context, the word 'herbs' wouldn't have resonated with the rest of the world, led to the coining of the word, 'Aerabyte' – a byte of aerobic exercise.

In future, when you think of fitness, think about 'giving it the herbs', and think of Herb Elliott, whose gold medal winning time of 3.35.6 on a cinder track in the 1,500m at the 1960 Olympic Games would have won 9 of the last 15 Olympics, (including Japan 2021) and marked him as a contender in the rest.

This book is dedicated to Herb Elliott.

In 1995 while I was working at the Australian Institute of Sport, Herb autographed my copy of his book, 'The Golden Mile', adding the postscript, '*Let the animal run loose.*'



Herb Elliott, 'giving it the herbs' on his way to winning the 1960, 1,500m Olympic gold medal in Rome.

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Fitness is not about
being better than
someone else ... it's
about being better
than you used to be.

1. Introduction

THE GOOD NEWS

As soon as you embark on a serious aerobic fitness training program there's a high likelihood that the symptoms of personally-generated metabolic (and mental) health dysfunction will begin to disappear, not overnight of course but gradually. Clues that this is happening is your resting heart rate goes down and your heart rate variability goes up. (Fitbit automatically provides you with this information.)

When it comes to how quickly you're going to restore poor metabolic health to good, just keep in mind the number of years it's taken to get to where you are now and the severity of your dysfunction.

All it takes to improve your aerobic fitness is a bit of time and effort. Compared with visits to the doctor and the chemist, it doesn't cost much, even if you have to go to a gym to work out on their strength training machines.

HOW FIT ARE YOU?

I've included the 20m run test of aerobic fitness in this book so you can gauge your level of aerobic fitness and what sort of metabolic health you're in.

THE CATCH

When it comes to the **Fitbit Aerobic Fitness Zone System**, the only catch is that you have to do the exercise yourself. It's not something you can sub-contract out, or get from a bottle or a tube.

20 minutes a day is good, 30 minutes better, 40 minutes best.

If you're struggling to find 40 minutes, consider taking 40 minutes off your TV time, or off your sleep. If you take it off your sleep, you'll sleep better and need less sleep. Go to bed earlier: you'll get up earlier. (Fitbit tracks how much sleep you're getting and the quality of the sleep.)

If that doesn't work, you're not fair dinkum. And if you're not fair dinkum about looking after your health, why should anyone else be?

If you can get 300 Fitbit zone points a week there's an 80% chance that for 80% of people, they'll get themselves back to 80% of good metabolic health in around 80 days. Them's not bad odds.

Good times to exercise are in the morning, after work, and on the weekend. Training with an exercise partner makes the discipline just that much easier.

TRAIN HARDER AND SMARTER

Most people don't train hard enough or long enough. They don't know what hard training is – or its benefits. Unless they've been serious about their sport – and that's less 20 percent of people – they've never trained hard. And once they stopped playing sport they never trained again.

They've never experienced the discipline that comes with training hard. Nor have they experienced the exhilaration and the joy that can come at the end of a hard workout. Their metabolic system has never been put to the lung busting, heart pumping test. They never get a good sweat up. You can see it in their bodies.

Once you get back into the routine of a regular training program, you'll gradually build up your aerobic fitness. In fact, you will be forced to build up to it gradually. Your body won't let you work too hard, too soon.

To change one's life: start immediately.

William James

2. The investment – as well as time

1. Heart rate monitor

I highly recommend you get a Fitbit heart rate monitor so you can check to see whether there's enough vigor in your exercise program – while you're exercising. A lot of the gym machines will give you a reading of your heart rate on the console, transmitted from a heart-rate strap around your chest or by gripping a heart rate sensor on the machine itself.

We've reached the digital age and your Fitbit will send heart rate information direct to your phone. That takes a lot of the hard work out of heart rate monitoring.



It may take you less than a minute to get your heart rate up to 60% of your maximum heart rate. If you're jogging, it will only take another minute or so to get your heart rate over 70% or however high you want it to go. Once you've reached your training heart rate you can slacken off a bit but still keep it ticking over at your desired heart rate.

I recommend you use the Fitbit system to keep track of your resting heart rate. It's another measure of metabolic health. As you start exercising more, you'll soon notice a decline in your resting heart rate.

2. Weight and percent body fat scales

I also recommend you invest in a set of Fitbit Aria bathroom scales that measure weight and percent body fat functions.

Weigh yourself each day after your morning shower.

This will keep you focused on your weight goals – whether maintaining an ideal weight or reducing weight.



3. Blood pressure monitor

Keep track of your metabolic health with your own personal blood pressure machine. Take your blood pressure at the same time every day. Taking your blood pressure at the end of a meditation session sounds like a good idea – ten minutes on your own, with your eyes closed thinking about nothing.

Purchase a blood pressure monitor that is Bluetooth compatible.



MEASURE YOUR LEVEL OF AEROBIC FITNESS

Included in this book is information about the 20m run test of aerobic fitness.

After taking thousands of people through the 'Beep Test' I came to the conclusion that a five minute, 20m shuttle run was more than adequate.

The test is to see how many laps you can complete in 5 minutes.

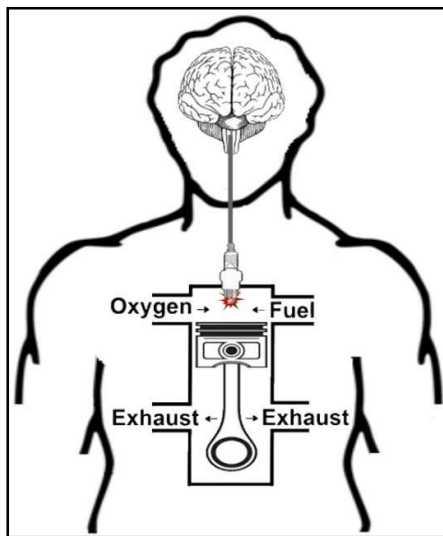


3. The metabolic health engine

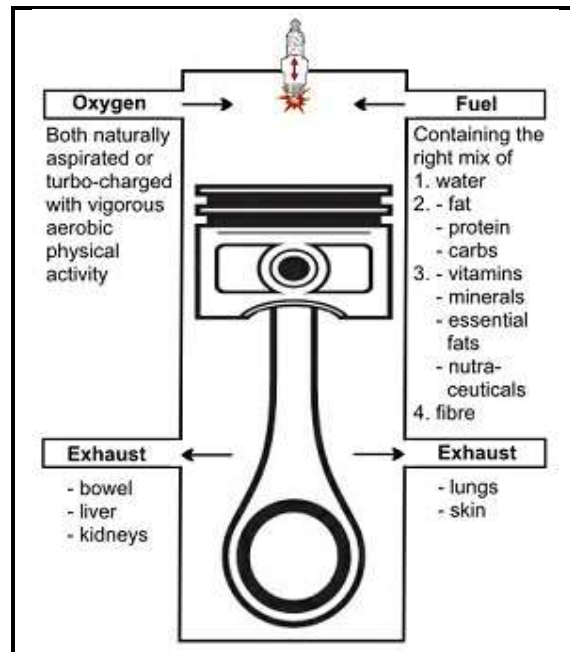
In an age when personally-generated metabolic dysfunction is the most pressing of health issues, it's important to realize that vigorous aerobic exercise plays a mighty role in improving the efficiency of the process that

- delivers oxygen and essential nutrients to every cell in body and
- removes the waste products of metabolism from those cells.

METABOLIC HEALTH ENGINE Responsible for optima cell function



Here's the model in greater detail.



As a general rule, we 'get' the concept of aerobic exercise making sure every cell in the body gets enough oxygen. We're less likely to appreciate the role that aerobic activity plays in stimulating the 'exhaust system'.

With respect to the quality of the fuel being used, you'd have to say that a lot of people are starving on full stomachs. Not only are they eating too much food, and food that's of a high energy density, the nutritional quality of their food has been diminished by a lack of essential fats, vitamins, minerals and micro-nutrients. Add to that a lack of fresh food, over processing, and over cooking and you can see why some bodies are struggling to keep in good metabolic health.

Man cannot live on fat, flour, sugar and potato alone.

The purpose of this book is to make the case for dramatically boosting your aerobic fitness.

The **Fitbit Aerobic Fitness Zone System** is based on

- the frequency of your training sessions – i.e., how many times a week
- the duration of those sessions and
- heart rate.

Use this formula and you'll know if you're getting sufficient aerobic exercise to improve and maintain good metabolic health.

4. The metabolic health defrag

If I can use a computer analogy, one of the effects of regular vigorous aerobic exercise is to give the body a 'metabolic defrag'. Prior to a computer defrag, an analysis of fragmented files looks like this:



After the defrag, it looks like this:



If there was a similar process to 'defrag' your own body, how much better would you feel?

Well, there is. It's called vigorous aerobic exercise and if it comes in the right dosage, you'll feel better.

In fact, if you maintain your exercise regime over the years, age 70 will be the new 50.

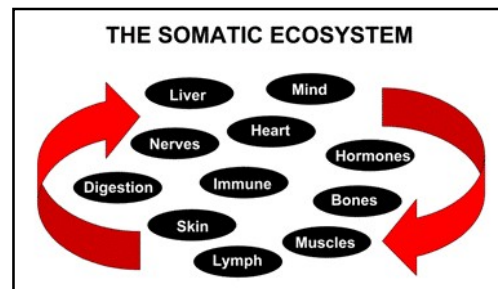
THE BODY AS AN ECOSYSTEM – all parts working together

The body is an ecosystem in which all parts are interrelated.

If one part of the ecosystem shows signs of dysfunction, there's a fair chance there will be other parts of the system that are not functioning well either.

Added to that, dysfunction in one part of the system may lead to dysfunction in another.

The good news is that if you improve the health of one part of the ecosystem, then, just as a rising tide lifts all ships, there's a good chance the health of other parts will improve. It's the system, stupid!



* Soma (Greek) meaning body.

In fact, with a metabolic defrag we're seeking to bring about a grand improvement in the metabolic health ecosystem. Of course, improving aerobic fitness won't do that on its own. However, it will make a significant contribution to restoring poor health to good.

To give an example of the interrelation of different body systems we're familiar with the **psycho-somatic relationship**, where what's going on in the mind, particularly the subconscious mind may show up in other parts of the body as high blood pressure, irritable bowel, sleeplessness, rashes, musculo-skeletal pain ...

We are less familiar with the **somato-psyhic relationship**, where things happening in other parts of the body will affect our mind.

The best way to approach dysfunction of the mind is to treat the mind as if it were inside the body instead of appearing to be suspended outside the body on top of your neck. That may assist you to see more clearly the relationship between metabolic health and all the major body systems, including the mind. Again, what's good for the heart is good for the head.

In the future when you hear people talk about poor mental health, it's causes and treatments, listen to see if they refer to the 'metabolic health ecosystem system', if not in the same sentence or paragraph at least sometime before they stop speaking. Simply focusing on a symptom that's manifest in one part of the body will, most likely lead to a poor diagnosis of causation which in turn may well lead to symptom-masking treatment that is unlikely to restore poor function to good.

5. The mental health defrag

There is an epidemic of poor mental health. Too many people are on the blue and black end of the mood scale.



The green, orange, blue and black moods are related to your environment, your general metabolic health and what's going on inside your head. Here's the defrag model (again).



When it comes to the black dog of clinical depression, there's evidence that physical activity has as much or an even greater beneficial effect after one year, than a year's supply of fluoxetine. (Find that hard to believe? Read psychiatrist David Servan-Schreiber's book 'Healing Without Freud or Prozac' or John Abramson's book, 'Overdosed America'.)

Servan Schreiber outlines the results of a study from researchers at Duke University who compared the anti-depressant effects of jogging with those of Zoloft.

'After four months patients treated with either approach were doing well. On the other hand, a year later, there was a major difference between the two types of treatment. More than a third of the patients who had been treated with Zoloft had relapsed, whereas 92 percent of those who had followed the jogging programme were still doing well.'

Abramson refers to depression as the 'exercise deficiency disease'. He goes on to say that 'short-term treatment with an antidepressant medication relieves symptoms but appears to decrease the likelihood of patients making the positive life changes necessary to prevent symptoms from recurring.'

If that's not good enough for you, go to the journal, Psychosomatic Medicine 62:633-638, 2000 and read the results of the study 'Exercise Treatment for Major Depression'.

What the experts are saying is that for those mental health issues that are generated by metabolic dysfunction the need for a metabolic health intervention needs to be considered. That means the prescription of diet and aerobic exercise.

There are (at least) 4 issues involved in the prescription of aerobic physical activity for depression.

1. Not enough doctors 'do' aerobic exercise. 'Fitness' is the word that dare not speak its name.' As a general rule, it's fair to say that 'fitness' is below the medical industry's pay grade. Few doctors prescribe it at all. Those who do, usually fail to prescribe it in a sufficient dosage for it to be effective.
2. The fitness industry isn't yet switched on to servicing this market. It's considered above their pay grade.
3. The counselling industry – particularly the psychiatric branch - isn't switched on to aerobic exercise either. The net result is that it colludes with its customers and agrees only to prescribe a pill.
4. The technology needed for doctors, fitness practitioners and counsellors to first prescribe and then measure, manage and monitor the exercise their clients do hasn't yet reached the surgery or the gym.



6. Lifestyle choices

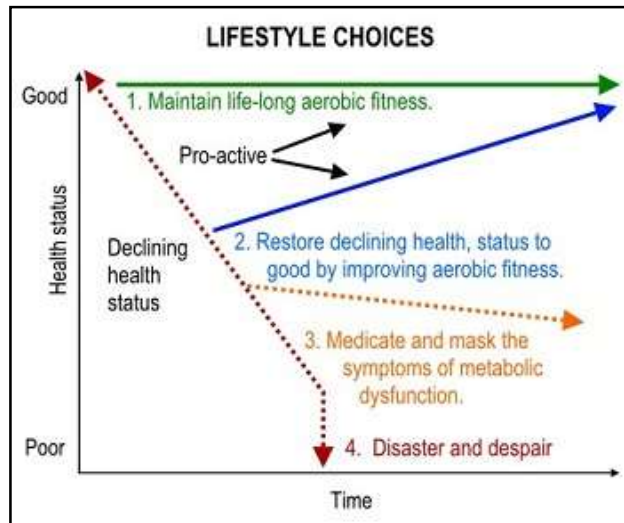
Popular medical industry practice is to prescribe drugs to mask the symptoms of poor metabolic health rather than prescribe exercise of the right dosage that people can follow to improve it themselves.

In a sedentary world that's awash with junk food, you can be pretty certain that the symptoms of metabolic dysfunction are not caused by the lack of pharmaceuticals.

Where I come from, prescribing drugs (and other treatments) to mask symptoms is known as junk medicine. All that does is slow down the rate of decline in health status. For all intents and purposes, poor metabolic health gets worse, not better.

In the **lifestyle choice** model, there are four ways to go:

1. Maintain a lifelong aerobic fitness habit.
2. Restore poor function to good by becoming aerobically active after a decline in metabolic health status due to a period of sedentary behavior.
3. Maintain the sedentary lifestyle: mask the symptoms of poor health as a way of slowing down the decline in health status without restoring poor health to good.
4. Maintain the sedentary lifestyle and do nothing to avert impending disaster and despair.



Only on the very rarest of occasions will a medical, health or fitness practitioner write out the aerobic fitness prescription that includes frequency, duration and intensity, one that you, yourself can do to restore poor metabolic function to good.

The symptoms of metabolic dysfunction are well known, so are the symptom-masking medications. However, headaches are not caused by a lack of Tylenol, high blood pressure is not caused by a lack of Avapro, poor sleep is not caused by a lack of Stilnox, adult-onset diabetes is not caused by a lack of Gliclazide, high cholesterol is not caused by a lack of Lipitor, clinical depression is not caused by a lack of Prozac, obesity isn't caused by a lack of gastric banding any more than piles are caused by a lack of Anusol.

OK, there's a place for medication while things settle down, but not, if you can help it, for the long term.

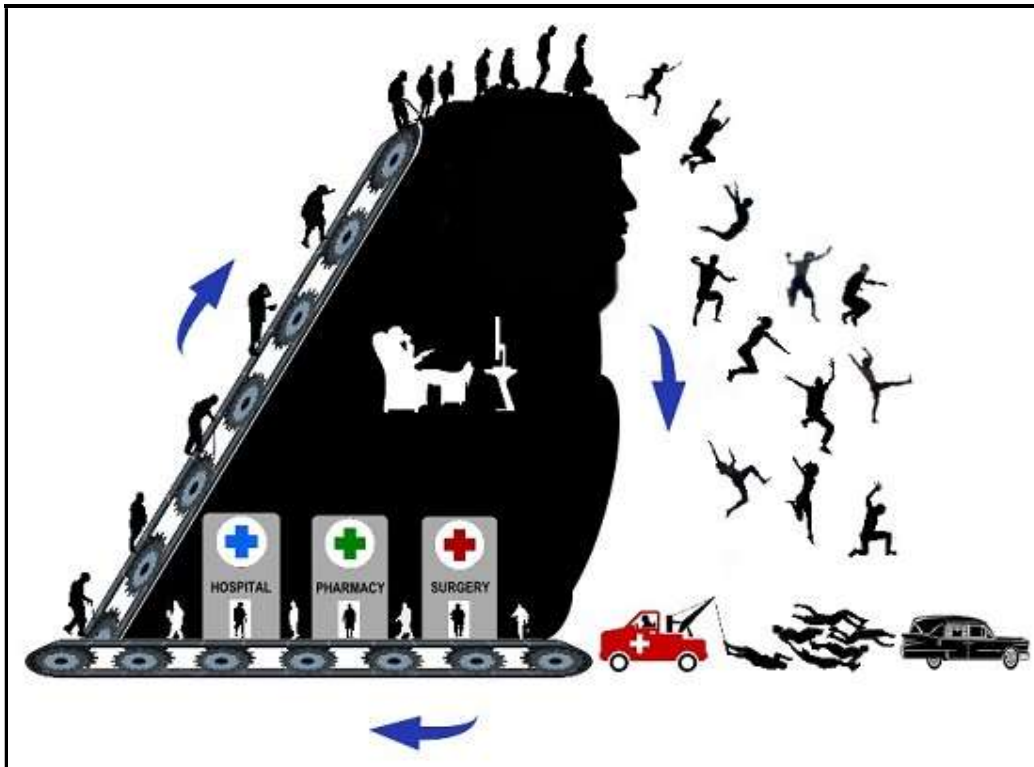
There is a constant struggle between our need to move more and more and the pressure of science and technology to design and produce machines that enable us to move less and less.

Garry Egger

7. The vicious sedentary lifestyle cycle

The sedentary lifestyle is the highway to metabolic dysfunction. Here's how it works.

1. As people strip all physical activity out of their lives, they move closer and closer to the metabolic health cliff face. Once there, all it takes is a zephyr to tip them over the edge. For some it takes less than that: they tip or topple of their own accord. Others have such an aversion to aerobic fitness that they literally fling themselves over the edge.
2. At the bottom of the cliff are the 'ambulances' waiting to pick them up and dump them on the symptom-masking traveller where they'll be booked in to either the surgery, pharmacy and hospital (or all three). Once patched up they'll traipse back to the escalator which lifts them back to the top of the cliff – ready for the next round of tipping, toppling and flinging.



If you've got a fitness-generated problem it needs a fitness solution, otherwise things only get worse.

But don't for a minute think that the common symptoms of metabolic dysfunction are diseases. High blood pressure is not a disease, neither is high blood cholesterol or adult-onset diabetes. They're just symptoms of personally-generated metabolic dysfunction.

Providing the dysfunctionality is caught early enough, with a good aerobic fitness maintenance program, (and a healthy diet) those body systems should soon be functioning normally – or at the very least, much better.

It was Lao Tzu who said something to the effect that a big problem could have been solved easily when it was a small problem.

That's very old wisdom that makes very good sense today. Which leads us on to the concept of systematic, **pro-active health maintenance**. ('Preventive Health', bah humbug.)

8. Pro-active health maintenance

Any large manufacturing or power generation organisation that doesn't keep a close eye on the health of its machinery is in for a rude shock - after it breaks down. The cost of a mechanical breakdown is usually greater than the cost of continuous, programmed maintenance.

The way of preventing major catastrophic machinery breakdown is to regularly monitor such symptoms of creeping mechanical dysfunction as noise, temperature, pressure, alignment and vibration. As soon as a slight change in performance is detected, maintenance fitters are galvanized into action.

Of course, there is a difference between mechanical breakdowns and health breakdowns, the principle one being that if you can get to a health problem early enough you don't need a 'mechanic', you can fix it yourself.

When it comes to the personally-generated body system dysfunctions, ignoring the signs of declining health status and waiting for a health breakdown to happen, and then having to call in a 'maintenance fitter', (i.e., someone wearing a white coat) can be an expensive business: so expensive the State has to pick up the tab.

The concept of **pro-active health maintenance** is designed to give you the greatest encouragement to adopt a life-long commitment to:

1. keeping yourself fit and healthy to the best of your ability
2. on the first appearance of any symptoms of poor metabolic, musculo-skeletal or mental health, doing whatever it takes to restore poor function to good - before it becomes a major health breakdown that requires an expensive medical intervention.



It's a slow process
but quitting won't
speed it up.

9. Miller 20m run test of aerobic fitness

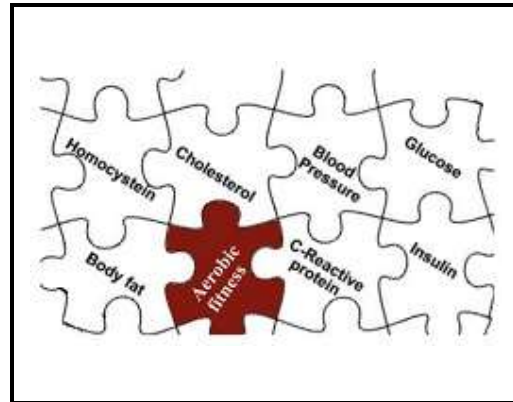


AN ESSENTIAL PART OF A COMPREHENSIVE METABOLIC HEALTH CHECK

I strongly recommend that the Miller 20m run test be included in the battery of assessments that go with a comprehensive metabolic health check. Without it, a health assessment is seriously compromised and a most fundamental part of the health jigsaw puzzle is missing.

You can do it yourself at home; you can do it under the supervision of your physician at the back of the surgery. You can do it at the gym.

When you can get to 40 laps (men) or 38 laps (women) report back and I'll give you your next assignment! You're in pretty good shape.



Of course, if you're serious about incorporating an assessment of aspects of fitness into a comprehensive health and fitness checkup, you'll need to include tests of strength and functional mobility.

COMPREHENSIVE MENTAL HEALTH CHECK

Any mental health check is also seriously deficient if it doesn't contain an aerobic fitness test. Mental health is closely associated with metabolic health.

THE USUAL WARNING

If you're in poor physical condition you may wish to have yourself checked out by your physician before doing the 20m run test. Any physician worth his or her salt will have a treadmill in their rooms and an electro-cardiac machine to which they can connect you while gradually increasing the speed and inclination of the treadmill. If they notice any life-threatening cardiac abnormalities, they can stop the test immediately. For regular folks who are overweight and under trained, this is by far the safest way to have your risk of cardiac dysfunction assessed.

The 20m run test is slightly different. It's for people who are not at grave risk of cardiac dysfunction.

You go at your own pace. That's what makes it a safe test. Over the years I've measured some pretty unfit people, two of whom just fell short of doing 10 laps in five minutes. If you can only walk slowly, you'll probably get just over 20 laps. To get 30 laps while walking you'll need to walk exceptionally quickly. Once you've achieved over 30 laps, you're starting to approach what could be called reasonable shape. Over 40 laps for men and 38 for women and I'd say you were in good shape.

At the other extreme I've seen three men get to 60 laps and one woman to 55.

So, pace yourself, don't overdo it. If you have to stop, **STOP!** If you're just running out of puff, slow down, walk or shuffle and then pick up the pace later on. Alternatively, you could walk one lap and jog one lap.

On the other hand, if you're completely exhausted and think you may be doing yourself a serious metabolic injury **STOP, stop immediately** and don't resume the activity.

HOW IT WORKS

The 20m, 5-minute run test has been derived from the 'Beep Test', 20m Shuttle Run, a reliable and valid measure of aerobic fitness, particularly for athletes and very fit people.

However, the 'Beep Test' is not discriminating enough for 'mere mortals' in that a lot of regular folks drop out before the end of level 2. They can't last 2 minutes. Plus, you need a CD or tape with the beeps on it and batteries (which run down) for your audio player if you're doing the test outside.

Accordingly, I've modified the test so each participant keeps walking, shuffling, jogging or running for a full 5 minutes. In the beep test, after 5 minutes people have done 41 laps. For regular folks this is a good score.

The 20m run test gives 'regular folks' a much better appreciation of their level of aerobic fitness than the Beep Test. How many laps you can do in 5 minutes is a much better gauge of 'where you're at' on the fitness scale, based on what you know you could have done when you were in your prime.

In the 20m run I've rounded the scores off and set the 'good score' target at 40 laps for men and 38 for women.

The 20m run test can be done by anyone at any time. There is no need for any special equipment. Simply mark out a 20-metre distance (close enough to 22 yards) and start moving at a pace which you believe you can sustain for 5 minutes.

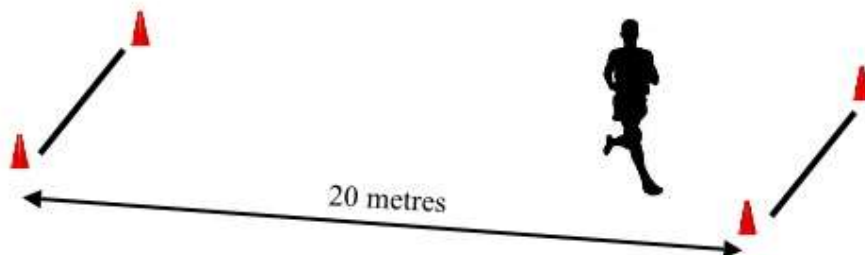
A lot of people have an inflated idea of their level of aerobic fitness. They don't realize how much it's declined over the years. They start off like bulls running out of open gates. Inevitably they slow down. One of the greatest of all middle-distance runners, Ron Clarke said, 'Most people can run as fast as I can, they just slow down quicker'.

Another thing about the test is that it is very weight sensitive. Imagine the effort it takes to stop, turn around and then move an extra 20Kg or 30Kg (more than you weighed 20 years ago) to begin the next lap? The corollary is that if you start losing weight you can expect an immediate improvement in the number of laps you can run.

All in all, it's a very good test of aerobic fitness and metabolic function.

If you're not in great shape, don't start off too fast. (Try for 4 laps per minute for the first minute and then judge your pace from there.) It may take you a few goes at it to learn what a consistent pace is. If you find you get too tired, slow down, or walk, but continue going for the full five minutes. Make sure at least one foot steps over the end line on each lap. The more laps you complete the fitter you are.

How many 20m laps can you complete in 5 minutes?



Discipline is doing
what needs to be
done, even if you
don't want to do it.

10. 20m run scoring tables

There are three scoring tables so you can judge your performance against other people.

A. Scoring table for regular folks

5 minute, 20m lap run. Laps

Men	<20	20	24	27	30	34	37	40	44	47	50
Women	<18	18	20	24	27	30	34	37	40	44	47
Points	0	1	2	3	4	5	6	7	8	9	10

B. Scoring tables for elite force personnel

5 minute, 20m lap run. Laps

Laps	Men	<37	37	39	41	43	45	47	49	51	53
Laps	Women	<35	35	37	39	41	43	45	47	49	50
Points		0	2	3	4	5	6	7	8	9	10

C. All-comers percentage points scoring table, including primary school students - women's scores adjusted.

	LAPS	POINTS		LAPS	POINTS	POINTS Women	
	1	1		31	45		
	2	2		32	50		
	3	3		33	55		
	4	4		34	60		
	5	5		35	64		
	6	6		36	67		
	7	7		37	70		
	8	8		38	74		
	9	9		39	77		
	10	10		40	80	85	
	11	11		41	81	86	
	12	12		42	82	87	
	13	13		43	83	88	
	14	14		44	84	89	
	15	15		45	85	90	
	16	16		46	86	91	
	17	17		47	87	92	
	18	18		48	88	93	
	19	19		49	89	94	
	20	20		50	90	95	
	21	22		51	91	96	
	22	24		52	92	97	
	23	26		53	93	98	
	24	28		54	94	99	
	25	30		55	95	100	
	26	32		56	96		
	27	34		57	97		
	28	36		58	98		
	29	38		59	99		
	30	40		60	100		



Using the Fitbit zone system to prescribe, measure, manage and monitor aerobic fitness



11. Fitbit zone points, where time meets effort – rated against heart rate

Trying to improve your aerobic fitness without an exercise prescription that includes frequency, duration and intensity is like taking a pill that comes without an active dosage and without instructions on how often to take it.

Without a definition of intensity, based on time and heart rate, the exercise guidelines recommended by the American College of Sports Medicine and the Centre for Disease Control are an unscientific nonsense: *'All healthy adults aged 18–65 yr should participate in moderate intensity aerobic physical activity for a minimum of 30 min on five days per week, or vigorous intensity aerobic activity for a minimum of 20 min on three days per week.'*

This sort of prescribing routine is one of the root causes of the inability of the medical industry to restore people with general metabolic dysfunction to good health. Doctors can't complain that they're too busy when their diagnostic and prescribing practices guarantee that their customers will soon be back on the surgery doorstep.

A good aerobic fitness program requires a dosage involving **frequency** (times a week), **duration** (length of each session) and **intensity of effort** (based on heart rate). This rule forms the basis of the **Fitbit Aerobic Fitness Zone System**.

If you're serious about becoming aerobically fitter, merely recording time, steps or distance is pointless unless effort is also taken into account.

$$\text{Zone Points} = \text{Time} \times \text{Intensity of effort}$$

(in minutes) (on a scale where points per minute are matched against heart rate)

Fitbit calculates the number of zone points you've accumulated using a formula based the actual time (T) in minutes, maximum heart rate, resting heart rate and heart rate reserve. Below it a rough guide, based on percentage of maximum heart rate. It's a close estimation of how Fitbit calculates the Fitbit zones.

Fitbit zone points per minute- based on % of age-related maximum heart rate.										
Effort	Light		Moderate		Vigorous					
Pts/min	0		1		2					
% MHR	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%
Age										
20	105	114	124	133	143	152	162	171	190	200
25	102	111	120	130	139	148	157	167	185	195
30	99	108	120	130	140	150	160	170	180	190
35	96	105	114	123	131	140	149	158	175	185
40	99	108	117	126	135	144	153	162	180	180
45	94	103	111	120	128	137	145	154	171	175
50	89	97	105	113	121	129	137	145	161	170
55	89	97	105	113	121	129	137	145	161	165
60	86	94	102	110	118	126	133	141	157	160
65	81	88	96	103	110	118	125	132	147	155
70	79	86	93	100	107	114	122	129	143	150
75	76	83	90	97	104	110	117	124	138	145
80	73	80	86	93	100	106	113	120	133	140
85	70	77	83	90	96	102	109	115	128	135
90	68	74	81	87	93	99	105	112	124	130

If you're diligent in your training, over the weeks and months you'll notice that you're able to train with a higher heart rate for longer periods of time. This means you're getting fitter, your metabolic system is becoming healthier.

A minimum of 250 zone points per week (ZPPW) is good, 300 is better, 350 is best and 400 is 'bestest'. I've called over 400 ZPPW a week, 'defrag territory'. Once you start getting 300 or more ZPPW a week you'll keep yourself in pretty good shape. If you want to achieve huge gains in your aerobic fitness and metabolic health, aim at (at least) 400 ZPPW.

Frequency / intensity / duration	Good	Better	Best	Metabolic defrag and 1% weight loss territory
Frequency: based on sessions per week	5	7	9	11
Duration: daily based on minutes per session	20	30	40	60
Intensity: based on heart rate	65%	70%	75%+	75%+
Fitbit per week	250	300	350	400+++

They say that your estimated, age-related maximum heart rate (MHR) is (roughly) $220 - \text{your age}$. Therefore, the maximum heart rate of a 40-year-old person is said to be 180bpm. Aiming to work at 70% of maximum heart rate for a 40-year-old is roughly 125 bpm. If you're a 40-year-old person and you're in good physical condition and aerobically trained, you'll be able to sustain 125 bpm for at least 40 minutes.

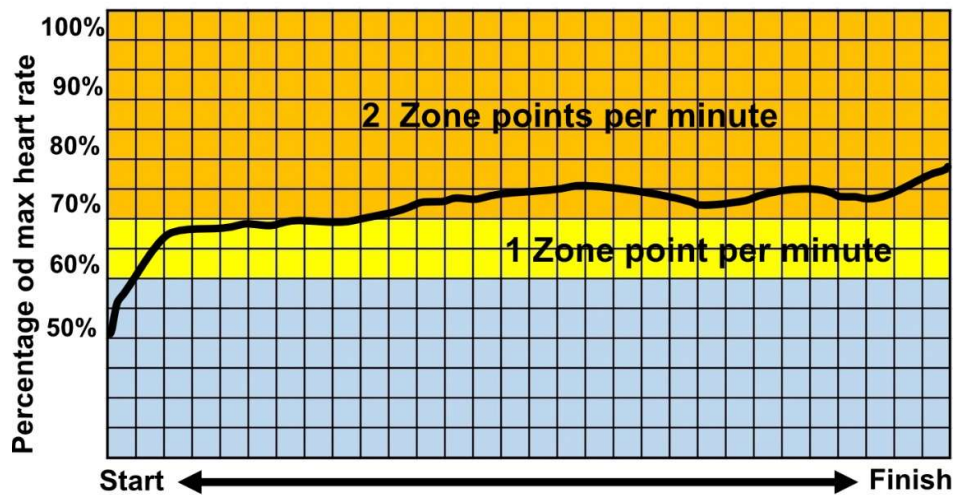
If you're fitter or less fit than the average fit person, you may need to modify the recommendation.

In a nutshell, here's how it will work

1. You'll need a Fitbit heart rate monitor connected to a smart phone containing the Fitbit app.
2. Set your Fitbit watch to, 'Workout'. Start the workout. You'll be able to check what your heart rate is as you go along.
3. You'll soon get a feel for what the two heart rate zones are. You'll be able to adjust the intensity of your workout accordingly.
4. The Fitbit app will start counting zone points from the moment you start exercising at a rate of (circa) 60% of your age-related maximum heart rate. At the end of the workout you'll get a read-out of the number of zone points you've generated.

Here's what the typical workout looks like.

EXAMPLE OF A TYPICAL WORKOUT



12. How long do you need to exercise

- to reach your target number of Fitbit zone points per week?

It all depends on how often you train, how long you train and at what heart rate.

Five, 30-minute sessions a week with your heart rate at 75% of your MHR (2 point per minute) will set you up for 300 fitbit zone points. Do that for a few months and you'll really feel the difference.

% of maximum heart rate	Fitbit zone points per minute	Minutes to achieve 50 zone points	Minutes to achieve 250 Zone points	Minutes to achieve 300 Zone points
75%+	2	25	125	150
60%	1	50	250	300
50%	0			

What this means is that the higher your heart rate during your workouts, the less time you have to spend each week getting your recommended number of Fitbit zone points.

If you're in an occupation where you're moving around all day – if you're a gardener, lawn mower, brick layer, parcel deliverer ... – then you may get some of your aerobic activity during work time. Some of the fittest and healthiest people I've seen in the last few years were staff in a botanic garden who spent all week tending the plants, digging up weeds and carting rubbish.

However, for most people this is not possible because they're cooped up in a cage and chained to a desk or steering wheel all day.

Most of us don't have jobs where we can keep moving around all the time so we have to find some recreational activity that can be done in 20, 30 and 40 minute bursts.

Only that way can we hope to make up for the movement our species was designed to do naturally and stave off the myriad body system dysfunctions that are the result of this motion starvation.



If you've got a sedentary occupation then you need to make extra provision – running, cycling, swimming or using the cardio equipment in the gym – to get the amount of aerobic exercise your body needs. If you don't, sooner or later you can expect key body systems to become dysfunctional. Then it's ambulances at the bottom of the cliff for the rest of your life, or until you wake up to yourself.

What's happens in our sedentary society is that people do not realize just how little activity they do; they don't realize just how far they've let themselves go. And if they are active, like walking every day, they're not aware of just how fit they are either.

Most people never measure their level of aerobic fitness.

THE SECRET TO MAINTAINING YOUR AEROBIC EXERCISE PROGRAM

- Exercise with a friend. You'll keep each other honest.
- Organize to meet at specific times.
- Get yourself a Fitbit smart watch to monitor your training sessions.
- Keep track of your heart rate and zone points and share your results with friends.



13. Aerobic fitness training recommendations – good, better, best

Here they are again.

Frequency / intensity / duration	Good	Better	Best	Metabolic defrag and 1% weight loss territory
Frequency: based on sessions per week	5	7	9	11
Duration: daily based on minutes per session	20	30	40	60
Intensity: based on heart rate	65%	70%	75%+	75%+
Fitbit per week	250	300	350	400+++

If you're loaded up with metabolic dysfunction, I recommend you train twice a day.

You may like to split your workout, one in the morning and one in the evening, each of 20 – 30 minutes.

If you've got any of the symptoms of general metabolic dysfunction, 8 sessions a week would be good, 10 better and 12 best. Too much you say? Well, not if you want to fix up the body system dysfunctions caused by lifestyle neglect.

You can vary the sessions, some hard, some easy, some long, some short.

A WORD OF CAUTION

If you've been sedentary for years, before you embark on your aerobic fitness program it would be wise to get yourself checked out by a doctor to make sure you're not going to keel over after the first couple of minutes of your first activity session.

A WORD ABOUT RESTING HEART RATE – these two images are from the same day.

Before you get up in the morning, check your resting heart rate on your Fitbit.



Fitbit estimated resting heart rate 52bpm.

Also check your night-time restoration heart rate. As illustrated on the purple image your night-time rate may well go 10 points below your normal resting heart rate.

The fitter you are the lower this heart rate will go as well.



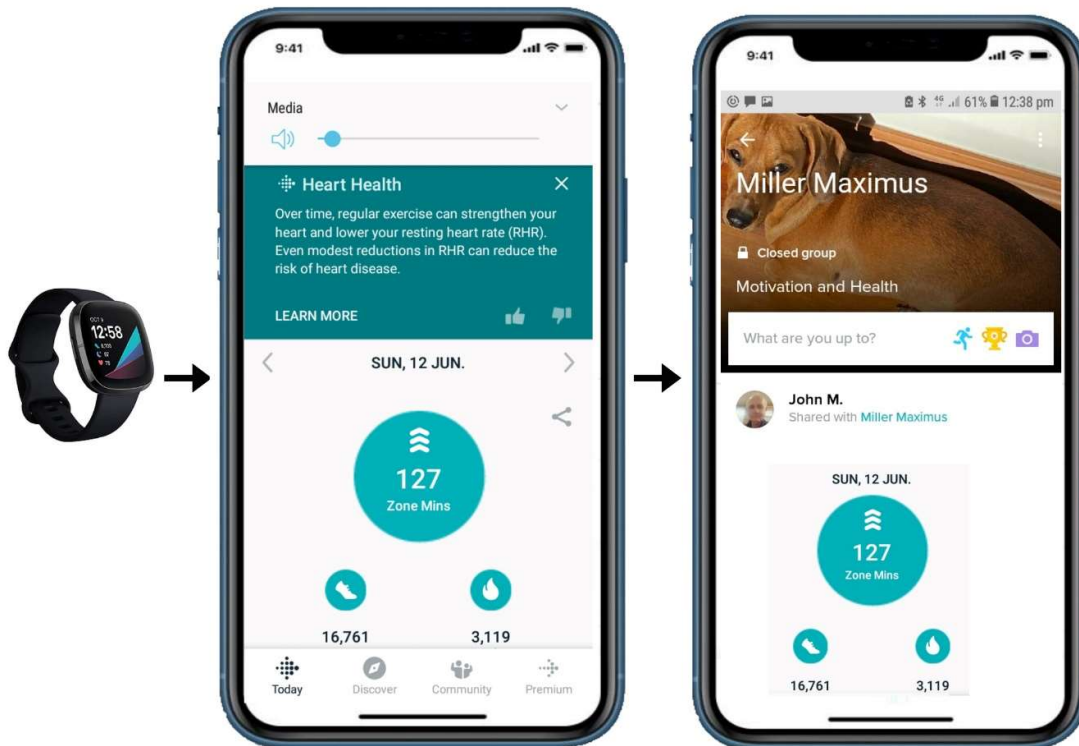
Same day, sleeping heart rate 40bpm.

14. Share your results with trusted third parties



A unique feature of the Fitbit system is that you can share your results with other Fitbit users. Once you've set up the sharing system the members of your group will be able to see how they're going and give each other encouragement. It's a highly motivating system.

The fitbit sharing data with trusted 3rd parties



Set up a group and start sharing data. It might just keep you honest.

15. Fitbit, a medical grade device

Arthur C Clarke said, *'What ever you think about the future it will be utterly fantastic.'* It is.

Fitbit is a medical grade device which will provide yourself, your medical, fitness, nutritional and mental health advisors with an enormous amount of information about your health, fitness and wellbeing.

You'll find it a wonderful motivator.

It's a record keeper par excellence!

- Steps
- Calories burned
- Zone points
- Continuous heart rate
- Resting heart rate
- Sleep restoration heart rate
- Breathing rate
- Heart rate variability
- ECG heart rhythm assessment
- Sleep quality
- Weight and percent body fat – synced from Apia scales
- Core temperature
- Oxygen saturation
- EDA scan

