

The Benefits of Exercise

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First of all a little about myself
 Married with 2 kids and a dog
 Grew up in Guernsey
 Studied medicine at Southampton
 Came to NZ in 2007 starting in Chch
 GP training in Dunedin/Qtn then moved to Taupo for a year, then up to Auckland
 where I started locum insurance work for Sovereign and as a Medical Doctor
 Consultant with Best Doctors
 Did a diploma in SEM through Otago then in 2014 decided to retrain as a specialist
 physician in SEM, and still going!
 Started with Asteron in 2016
 Director at Sportsmed in Chch and just completed a MHSc on mountain biking
 injuries.

Aims of the presentation

- To discuss:
 - Physical activity (PA) and the prevention and treatment of non-communicable diseases
 - How PA works
 - PA as it relates to healthcare and costs
 - Cost effectiveness of the promotion of PA
 - How to prescribe exercise



The goals are...

I'll try to keep this loosely insurance industry focused

You can assume everything is specifically about Physical Inactivity itself as independent variable (ie irrespective of BMI etc)

THE LANCET

“In view of the prevalence, global reach and health effect of physical inactivity, the issue should be appropriately described as *Pandemic*, with far-reaching health, economic, environmental and social consequences.”

“In view of the prevalence, global reach, and health effect of physical inactivity, the issue should be appropriately described as pandemic, with far-reaching health, economic, environmental, and social consequences.”

Physical Activity

HOME

NEW ZEALAND

Half of NZ population sloth-like: Survey

20 Jul, 2012 5:30am

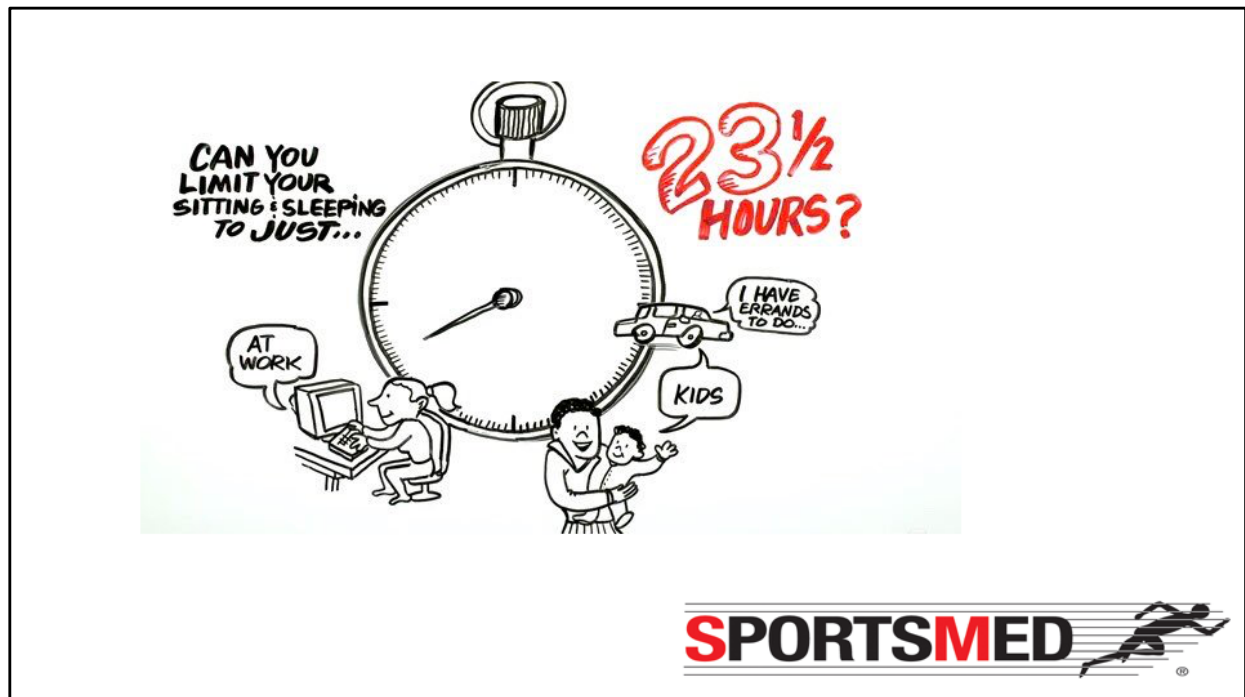
3 minutes to read

New Zealand is a nation of couch potatoes, according to a global comparison on physical activity published in the Lancet medical journal. Photo / Thinkstock

By: **Martin Johnston**
 Senior journalist, NZ Herald
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SPORTSMED

Inactivity is being more widely recognized as a global health problem, with the Lancet (a very well known medical journal) publishing a whole issue on the topic
 And what about little old NZ? This was published in NZ Herald 2012



Why is it so important?

In 2004 the WHO cited inactivity as the 4th leading cause of death after HTN, smoking, DM

However by 2009 it was the leading cause of death (in US)

More than 50% of adults don't meet guidelines

36% do nothing at all

Even amongst healthcare professionals, 40% US primary care doctors don't meet requirements and are less likely to advise patients

"Try not to do nothing for 23.5hrs a day"

Latest NZ data

- 51% adults active 30mins 5/7
 - Men 55%, women 48%
- 1 in 7 active for less than 30mins /week
- Only 10% of secondary school students meet guidelines (60mins/day)



So what impact could increasing PA have on....

- Life insurance and TI claims?
- Health Insurance claims?
- Trauma claims?
- Income protection claims?
- Accidental injury claims?



So there's a lot of experience in the room with claims payouts, what are your most expensive medical diagnoses in each of these areas? Suggestions?

Well life is pretty black and white (mostly)...

PA and mortality

- Low PA carries higher risk of dying than smoking, obesity, hypertension, high cholesterol
- For older men, regular PA decreases risk of death by 40%



For all those involved in underwriting out there...

In fact there's such a link between physical fitness and death, that the BMJ in 2011 published an article "how fast does the grim reaper walk?" ie below what speed does death start to gain on you? The answer is 2 miles (about 3 km) per hour

What is the burden of inactivity?

- Estimated to cause
 - 6% CAD
 - 7% T2DM
 - 10% breast cancer
 - 10% colon cancer
 - 9% of premature deaths



Benefits of regular PA for specific conditions

- Reduces:
 - mortality and risk of recurrence of breast cancer
 - risk of colon cancer >60%
 - Alzheimer's 40%
 - HTN & IHD 40%
 - Stroke 27%
 - T2DM
 - chance developing reduced 58%
 - More effective treatment than insulin
 - Other cancers (prostate, bladder, endometrium, oesophagus, kidney, stomach, lung)
 - Depression
 - Symptoms of MS, Parkinson's Disease
 - Falls in the elderly
 - Osteoarthritis (knee, lumbar spine)
 - Excessive weight gain*



Skin cancer might be the only increased risk, related to exercise outside in the sun
Weight gain is starved as exercise certainly has some benefits when it comes to weight management, however ironically given the public perceptions probably one of the things it's least good for is reducing weight (which is probably 80% diet, which is 90% willpower)

- What it does
- How it works
- Overdose
- Side effects



This is a marketing campaign developed by the American college of sports medicine which is being adopted by countries worldwide (although not yet in NZ, maybe it needs a corporate sponsor??)

Anyone got a pharmacology background?

Would you want a drug that does all of this?

Free of charge and safe for children?



Now available everywhere!
It is called **physical activity**



@Jeukendrup
www.mysportscience.com



How does exercise work on CVD

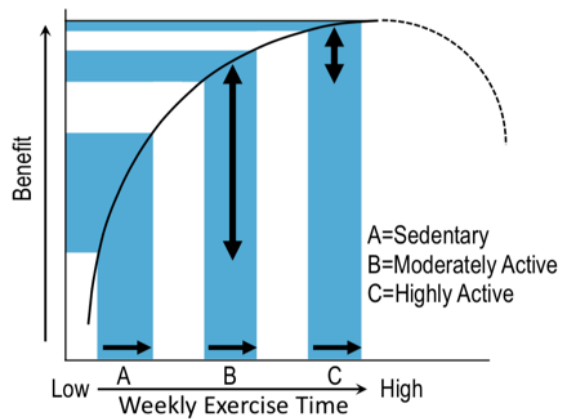
- 59%
 - reduction in inflammation and clotting 32.6%
 - BP 27.1%
 - Lipids 19.1%
 - BMI 10.1%
 - HBA1c 8.9%
- 41% unknown



Using example of CVD....

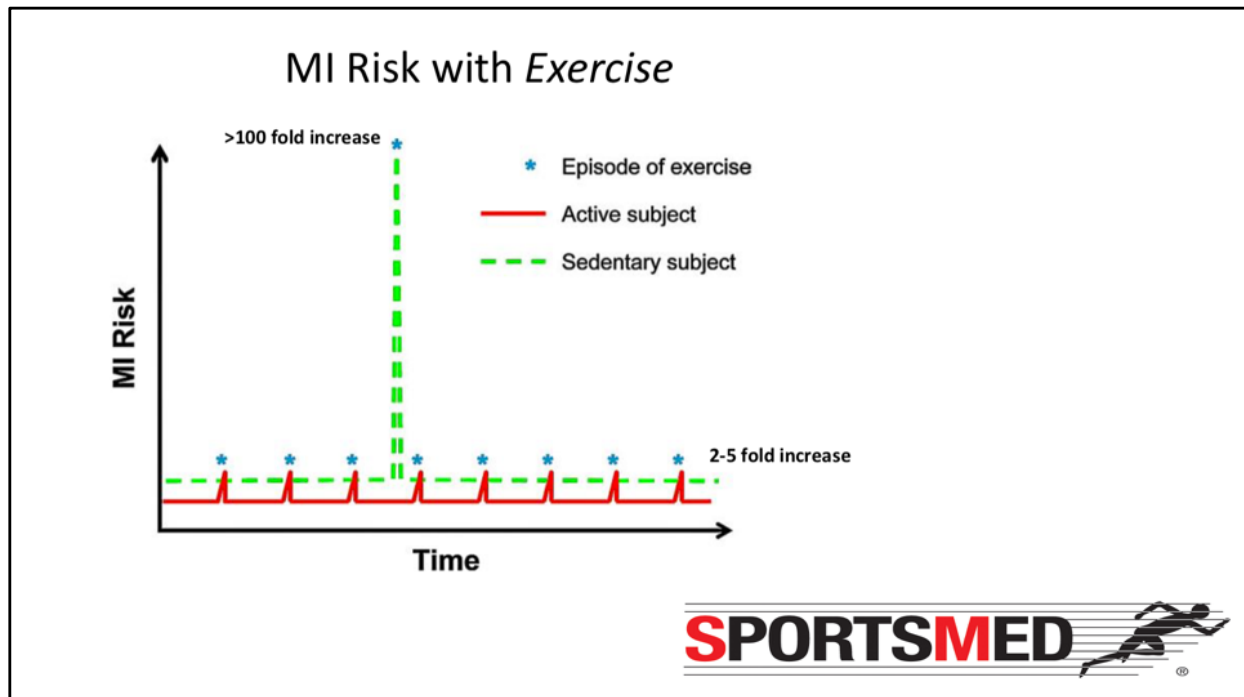
Note that the effect of weight loss by comparison (vs exercise) is mainly through secondary improvement in traditional RFs. So it may be better to be slightly overweight and active, than normal weight but inactive

Dose-Response Curve for *Exercise*



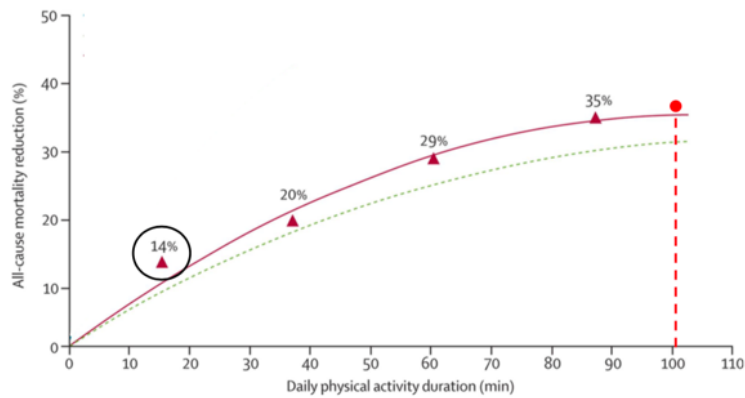
Like any drug there is a dose/response curve, with overdose possibly at the top.
Pheidippides

- Hero of ancient Greece ran 26.2 miles from Marathon to Athens to deliver news of military victory over the Persians.



Side effects include death
Published in Circulation

How much does walking reduce *mortality*?



How much exercise should I take? And what type?

Lot of this research and information comes from the Americans, with there 'branded' healthcare system.

So how effective is say the generic, cheap, basic version, walking?

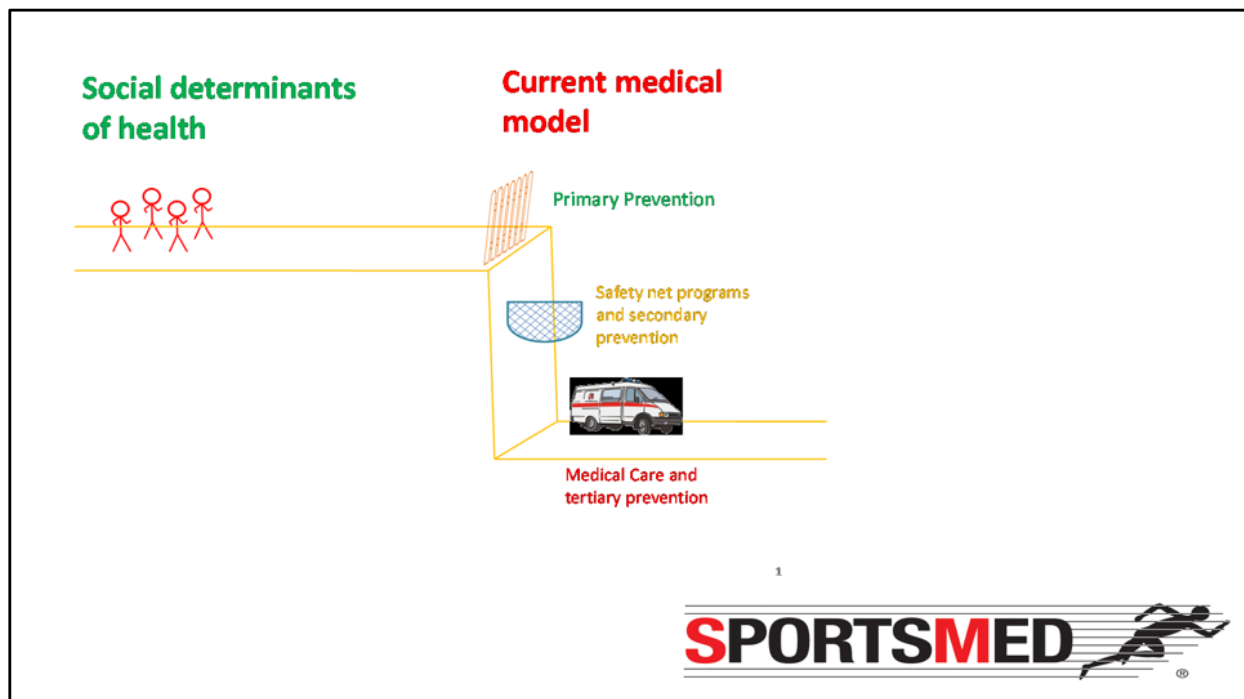
Cost effectiveness of the promotion of PA

- Economic costs in UK estimated GBP8.3b (popln 50m)
- 1-3% of total annual healthcare costs (conservative estimate), which can be mitigated
- Healthcare costs 4.7% lower per active day of the week (JAMA 1999)
 - Compare to BMI 1.9% per BMI unit, smoking 25.8%
 - Never-smoked + BMI 25 + PA 3/7 -> 49% lower costs than inactive smokers BMI 27.5
- Biggest gains in taking sedentary to low activity - ?easier
- Individually adapted programs add 35-43% PA



Just to give some more specific figures on this...

I've not seen NZ specific figures but GBP8.3b is NZD16b, popln 5m so back of envelope calculation gives \$1.6b



So we come to it that exercise is not only a great treatment for diseases, but is often preventative, as this slide emphasizes. The social determinants being activity and diet, along with sleep, community, stress, and other choices such as smoking.

How can we integrate PA and exercise into healthcare?

We can start recording it as a 'vital sign' like BP or heart rate

There is evidence that even brief advice in a primary care consult can be effective

Integrating fitness into healthcare

- Example from California – Claremont Club

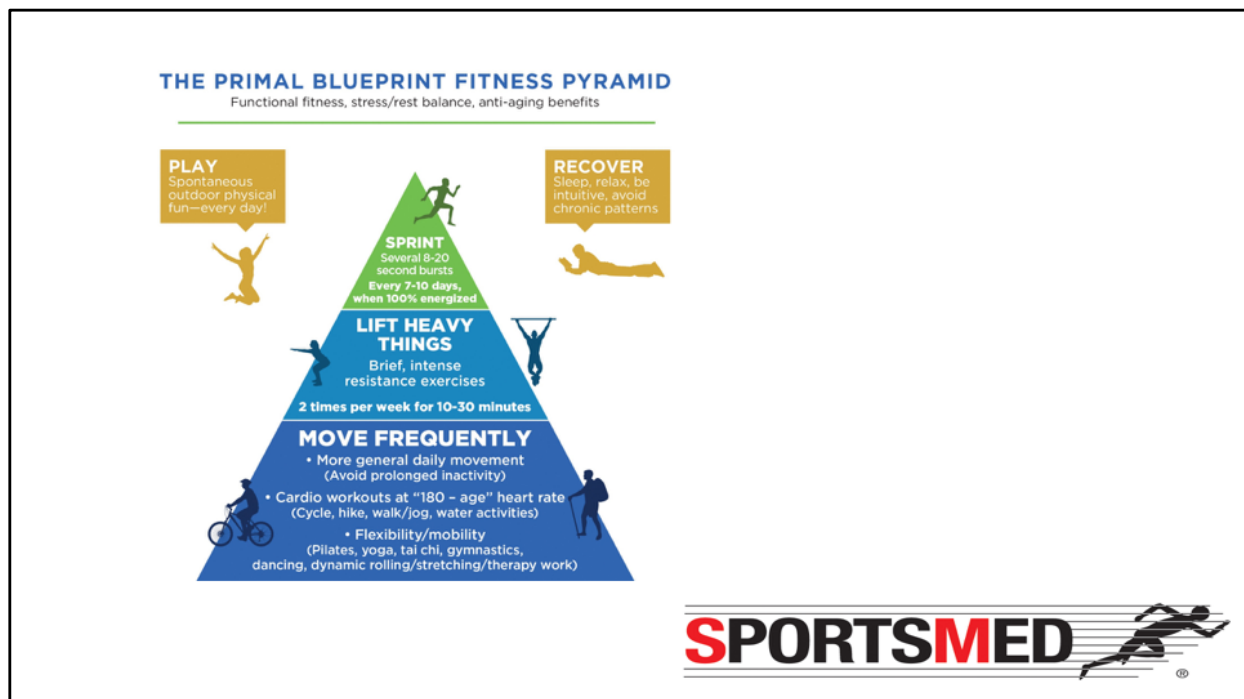
- Health club vs hospital clinic
- Acceptable referral option
- Create programs for patient groups

- Challenge to NZ

- Role of insurance industry
 - Reduction in costs
 - Good marketing look
 - Innovative compared to MoH



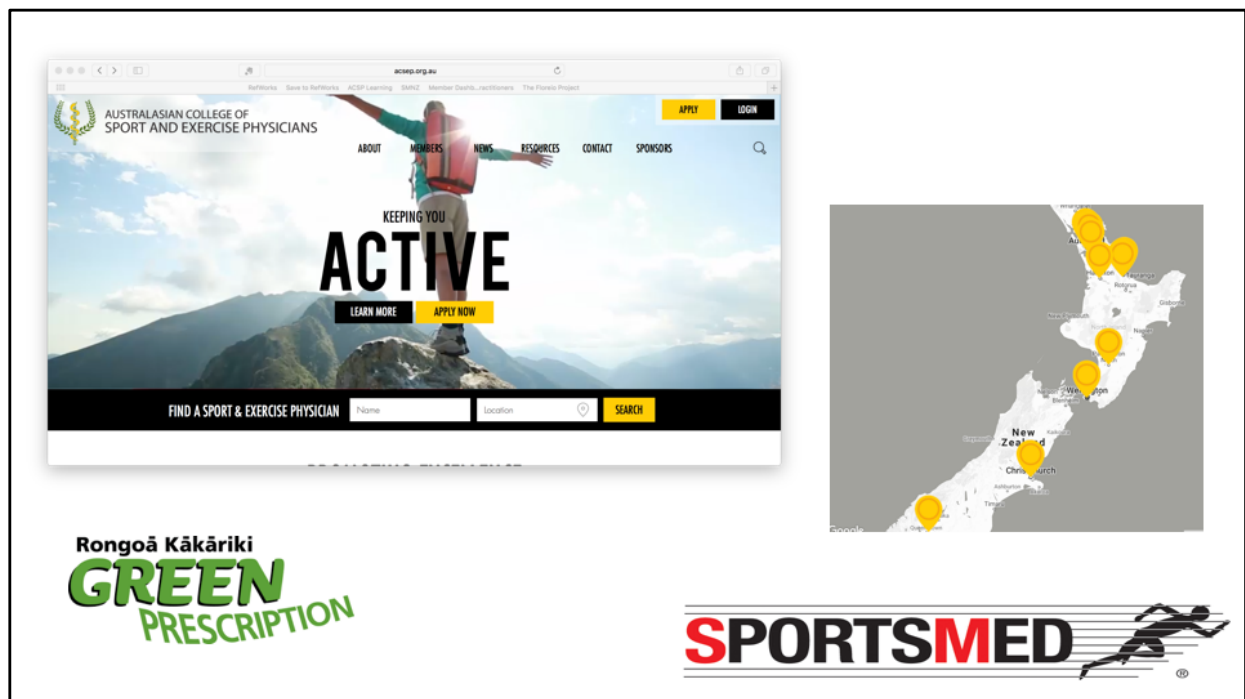
Augie Nieto, founder of Life Fitness and Hammer Strength, who sold his companies in 1999 for \$325. Developed Amyotrophic Lateral Sclerosis (type of MND) in 2005. He attended 'Project Walk' at Claremont where they basically moved him as normally as possible, even though he couldn't (he was on respirator with feeding tube). However it started working, and this is where he got to.



There are whole textbooks on prescribing exercise, but for otherwise people it's relatively easy, as this activity pyramid shows. This is from Mark Sissons, one of the paleo founders, whose stated goals are to live long and well, and to look good naked. For clients with more specific needs, we assess their starting point and decide the goal

'Prescribe' appropriate Frequency, Intensity, Time, Type

Method of application to suit individual (preferences, time availability, social aspects, diseases etc)



Who prescribes exercise?

PTs

Nurse practitioners

GPs

Exercise physiologists

Shameless plug - Sport & Exercise Medicine Physicians



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So go get out there!
Any questions?