Can active modes supercharge our health outcomes?

Jerry Khoo
17 March 2021

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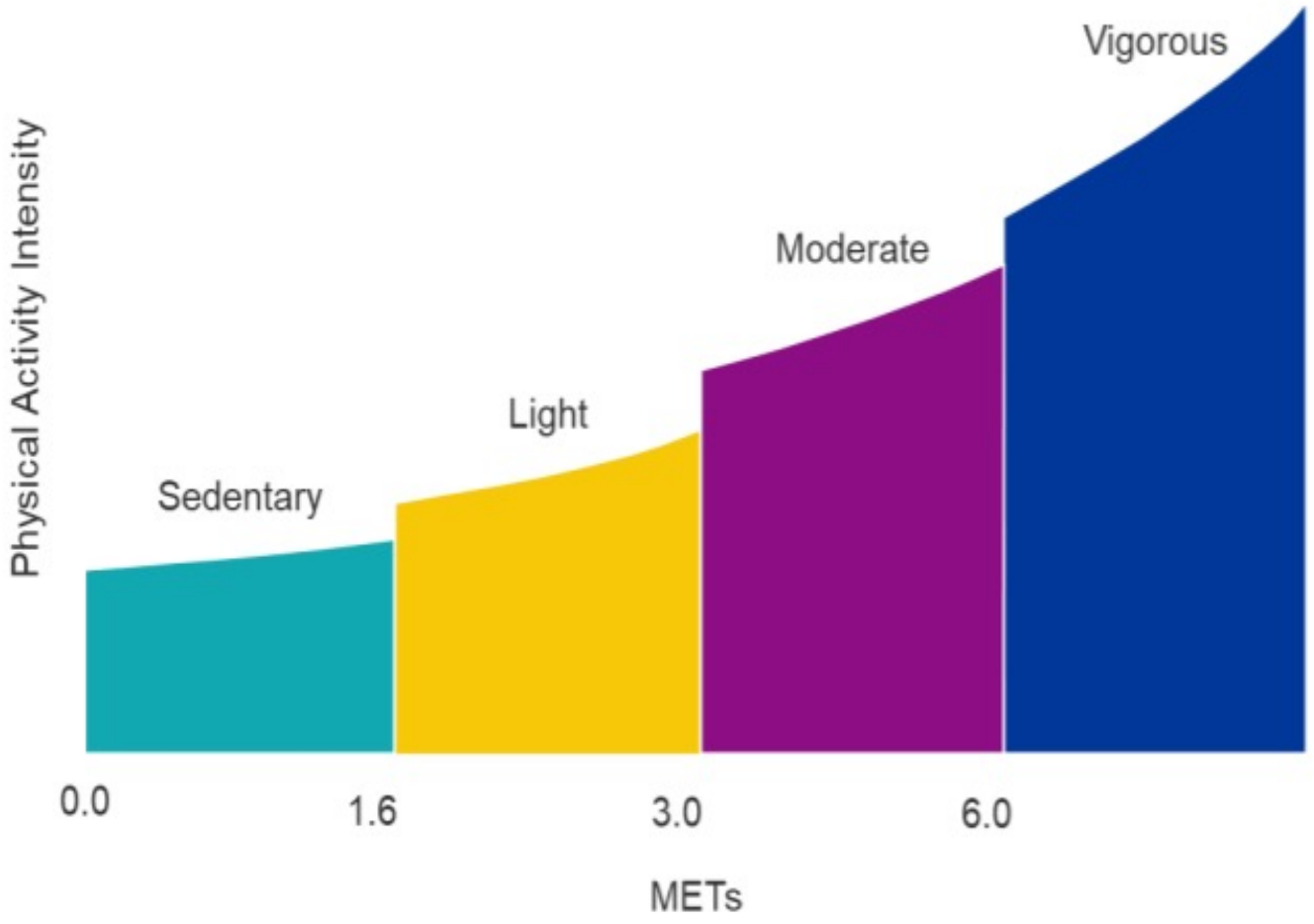
Agenda

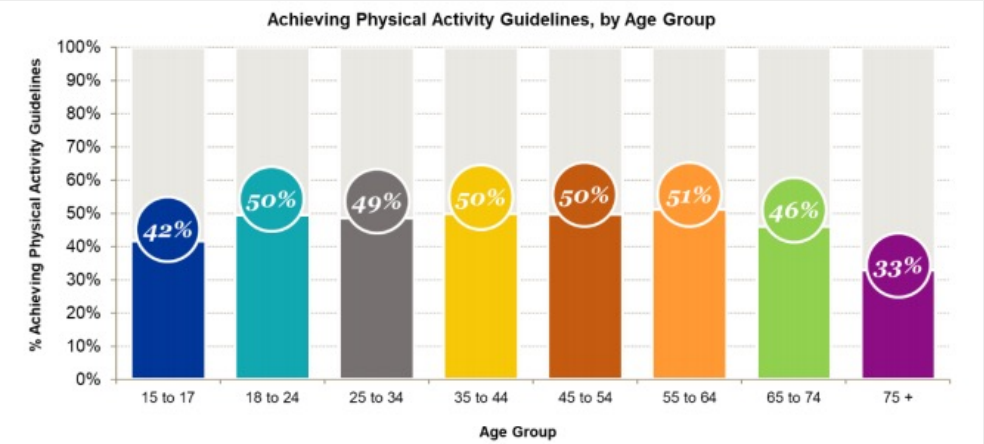
- ❑ Physical activity and health
- ❑ NZ's state of health
- ❑ Growth trends and characteristics
- ❑ Health quantification measures
- ❑ Health benefit valuation
- ❑ Gaps and opportunities

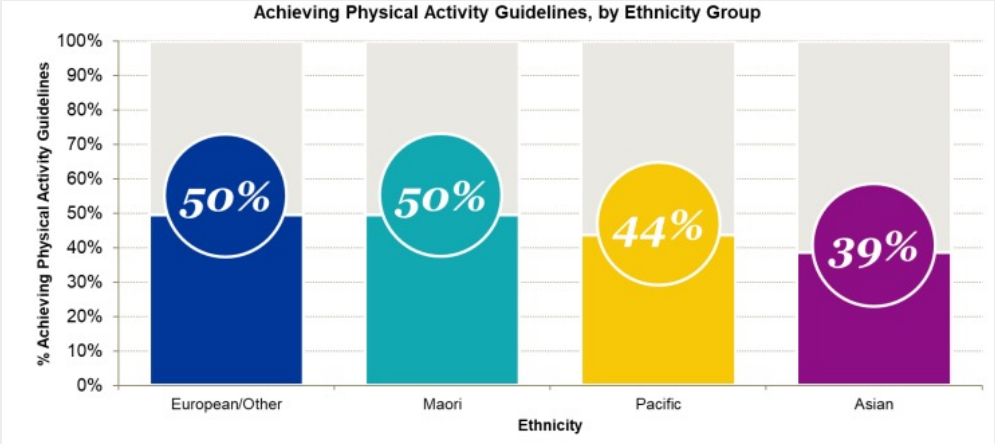
Physical activity – why should we care?

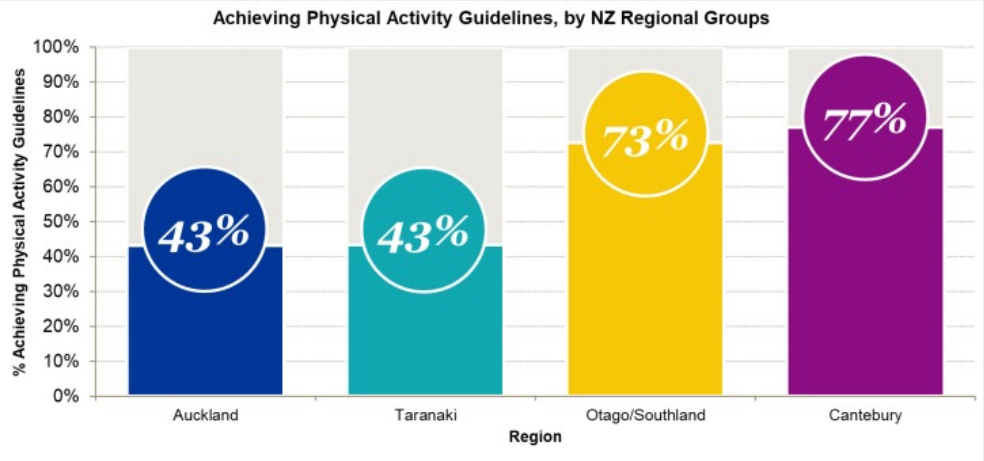
- 4th leading risk to global mortality (6% deaths globally)
- Levels of physical inactivity rising in many countries
- Leads to noncommunicable diseases such as:
  - Cardiovascular diseases
  - Cancer
  - Type 2 diabetes
- **NZ lose over 1 million years of healthy life each year**
  - **Physical inactivity contributed 3% of all health lost**

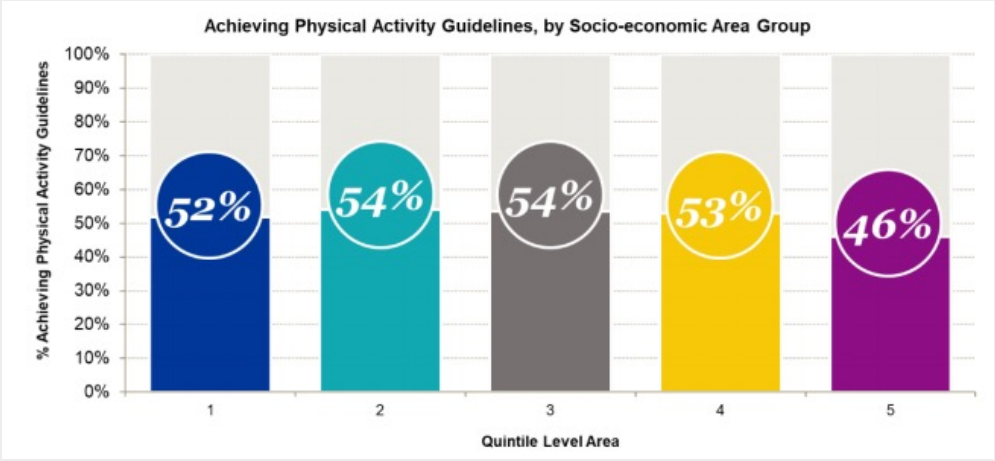
Physical Activity Requirements



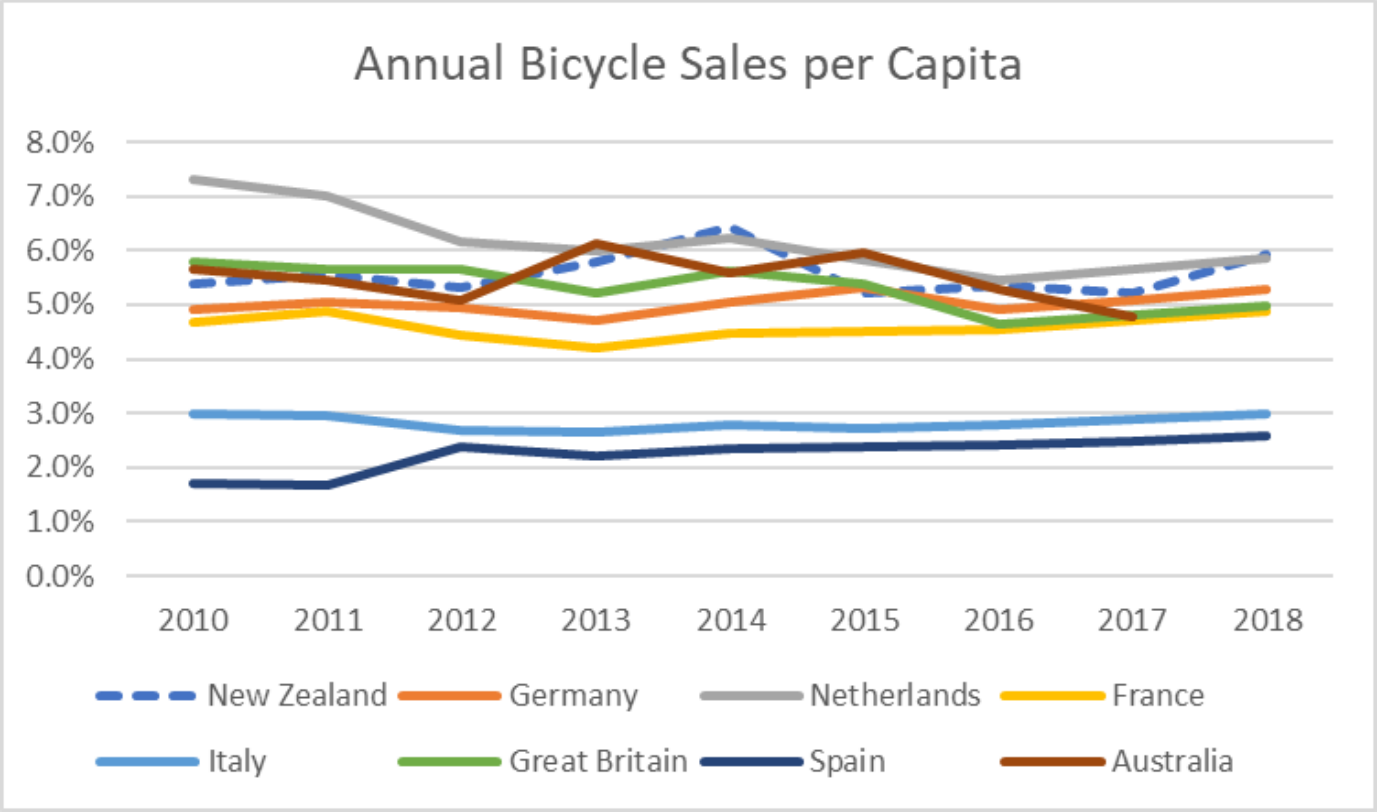

Achieving Physical Activity Guidelines, by Age Group
% Achieving Physical Activity Guidelines
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
42%
50%
49%
50%
50%
51%
46%
33%
15 to 17
18 to 24
25 to 34
35 to 44
45 to 54
55 to 64
65 to 74
75 +
Age Group


Achieving Physical Activity Guidelines, by Ethnicity Group
% Achieving Physical Activity Guidelines
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
50%
50%
44%
39%
European/Other
Maori
Pacific
Asian
Ethnicity


Achieving Physical Activity Guidelines, by NZ Regional Groups
% Achieving Physical Activity Guidelines
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
43%
43%
73%
77%
Auckland
Taranaki
Otago/Southland
Canterbury
Region

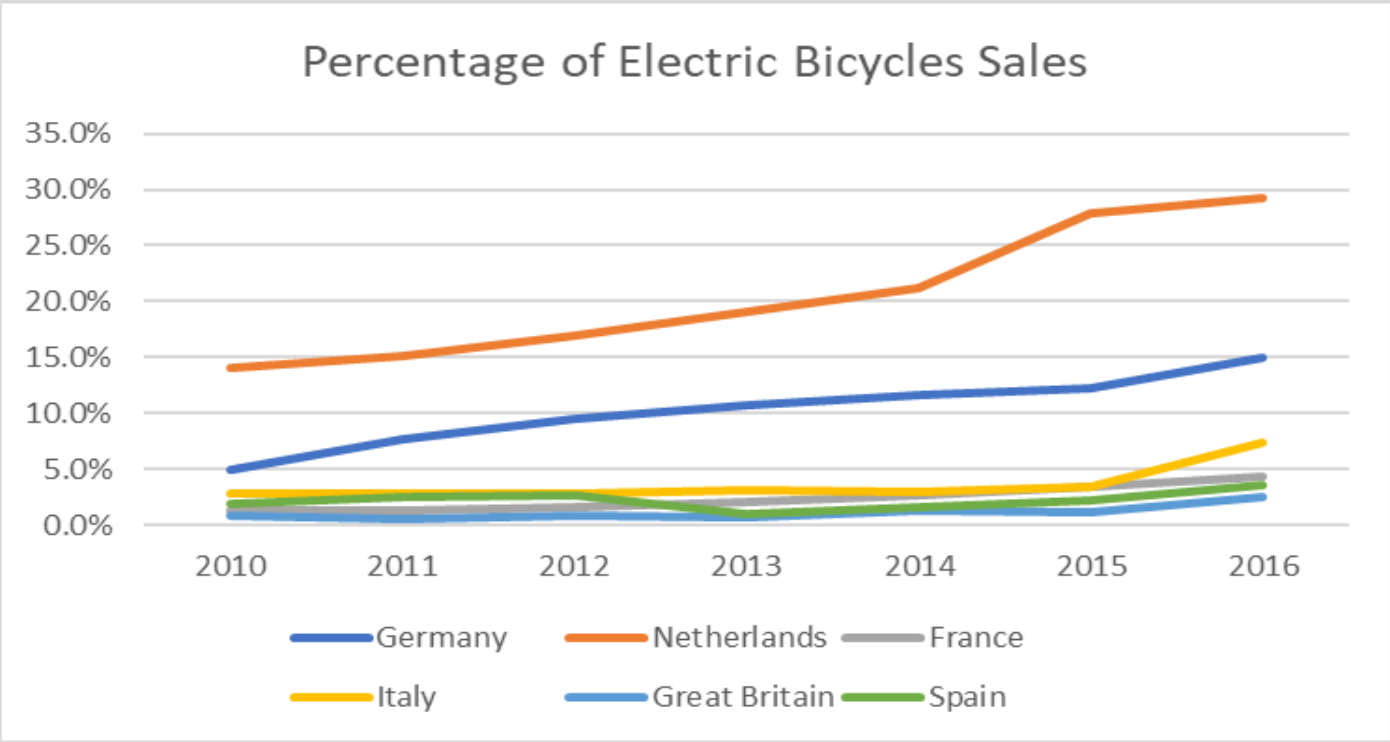

Achieving Physical Activity Guidelines, by Socio-economic Area Group
% Achieving Physical Activity Guidelines
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
52%
54%
54%
53%
46%
1
2
3
4
5
Quintile Level Area

Trends



Uptake of cycling in NZ not due to bike affordability….

Trends


Percentage of Electric Bicycles Sales
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
2010
2011
2012
2013
2014
2015
2016
Germany
Netherlands
France
Italy
Great Britain
Spain

Trends

Number of e-bike imports hits record high, could soon overtake new cars

Joel MacManus · 17:18, May 26 2020

JOHN BISSET/STUFF

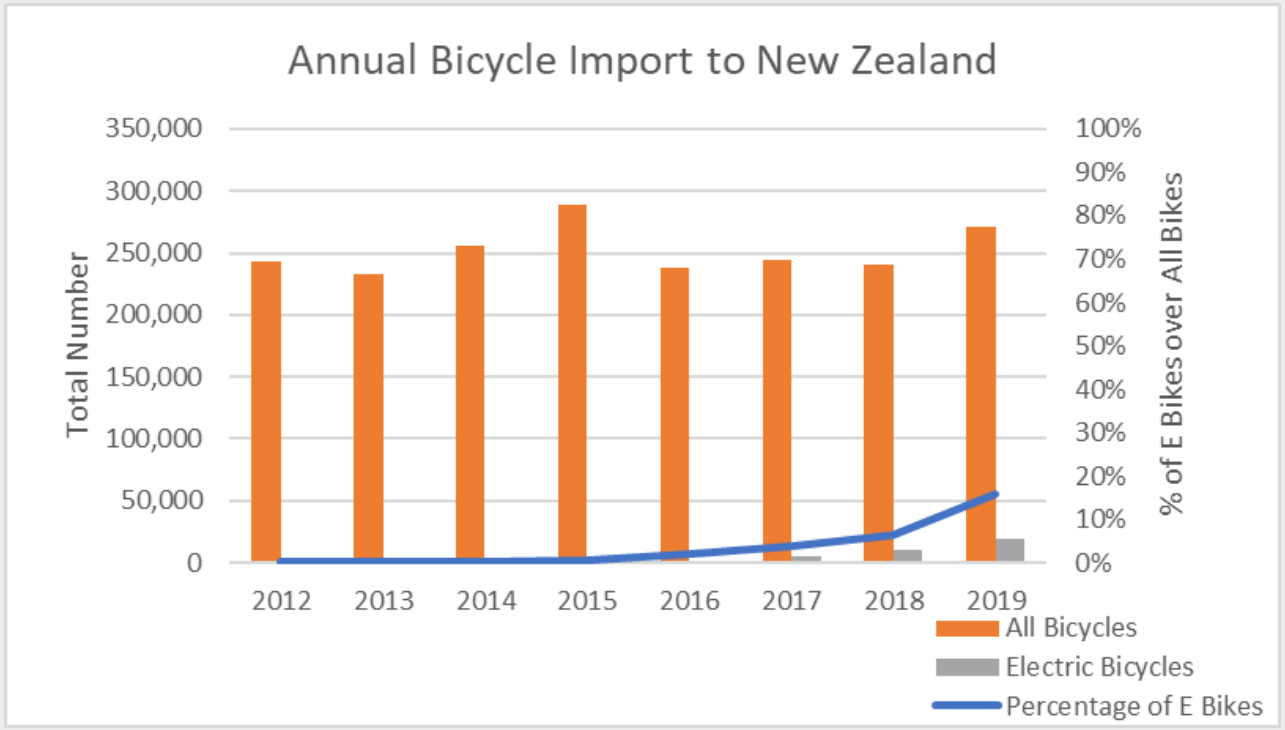
New technology has generated a huge market for the modern e-bike. However, Temuka man Trevor Birt built his own version 34 years ago.

The number of new e-bikes and e-scooters imported into New Zealand has hit a new record high of 65,000 in 2019, according to figures from Statistics NZ.

It's a huge jump year-on-year from 47,000 in 2018 and 23,000 the year before, and suggests they could overtake new passenger car sales within the next few years.

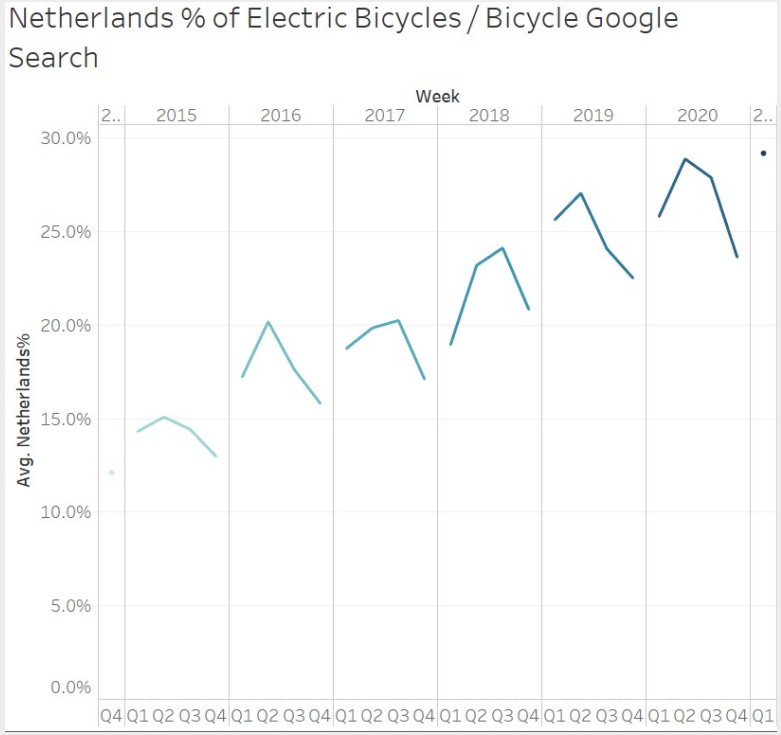
There were 104,000 new passenger cars registered in New Zealand last year, plus an additional 140,000 used imports.

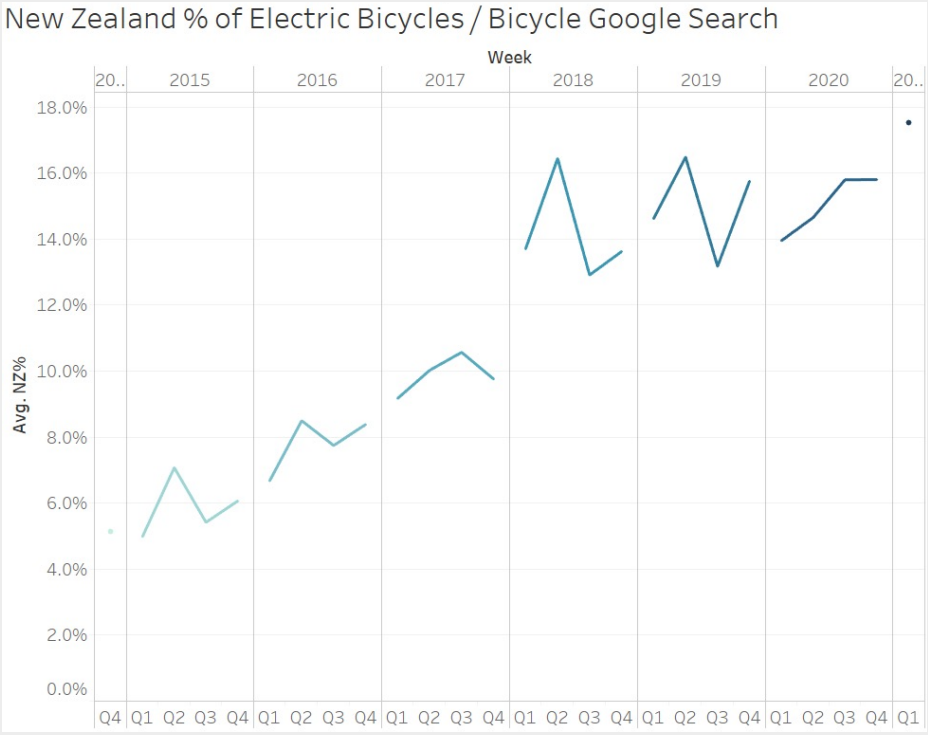
E-bikes have become so ubiquitous that New Zealand may need to start re-building its transport priorities around them, micromobility expert Oliver Bruce said.



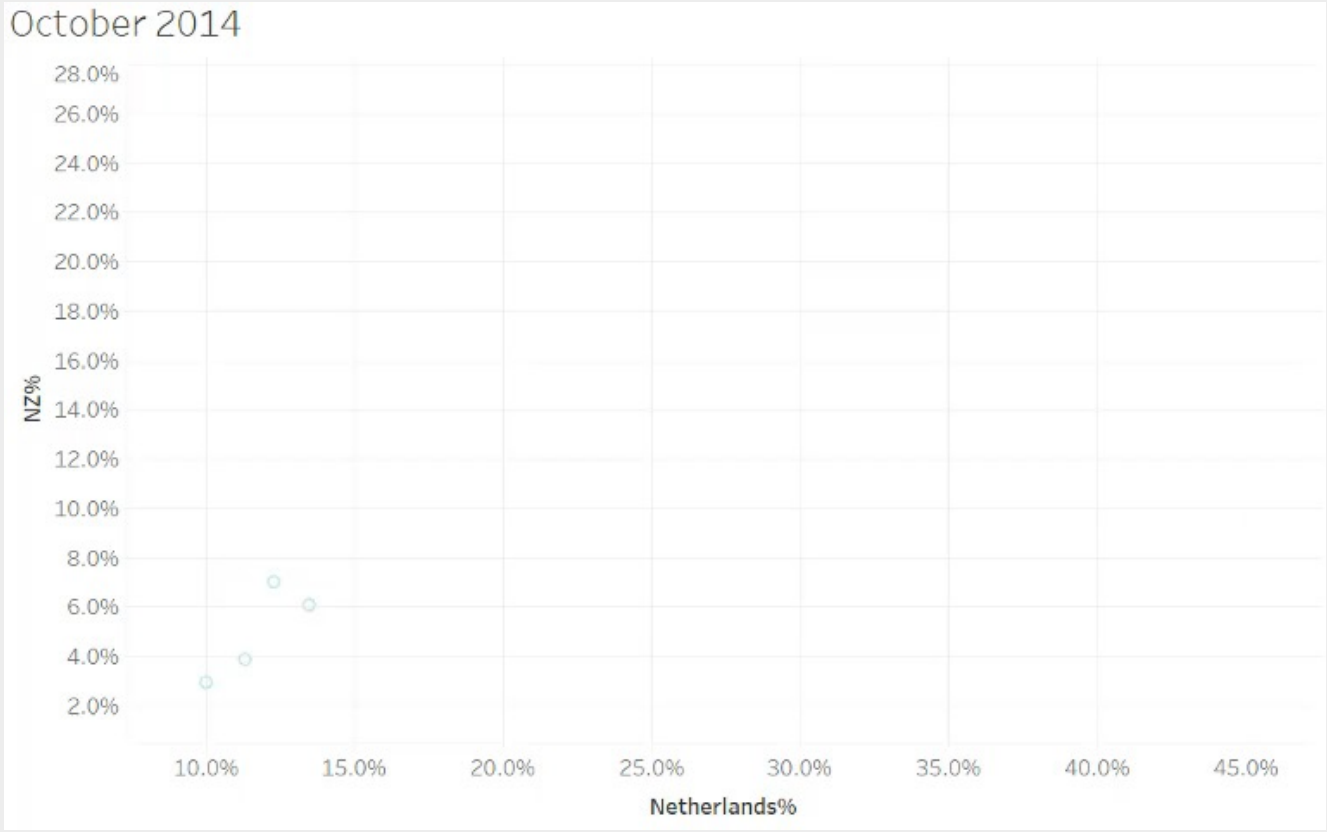
Tremendous growth in e-bike sales in NZ

Trends


Netherlands % of Electric Bicycles / Bicycle Google Search
Week
2..
2015
2016
2017
2018
2019
2020
2..
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Avg. Netherlands%
Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1

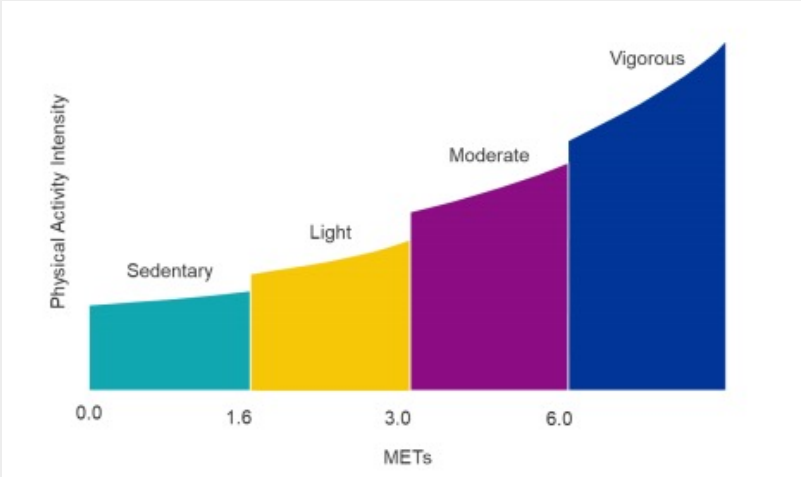

New Zealand % of Electric Bicycles / Bicycle Google Search
Week
20..
2015
2016
2017
2018
2019
2020
20..
18.0%
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
Avg. NZ%
Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1

Trends

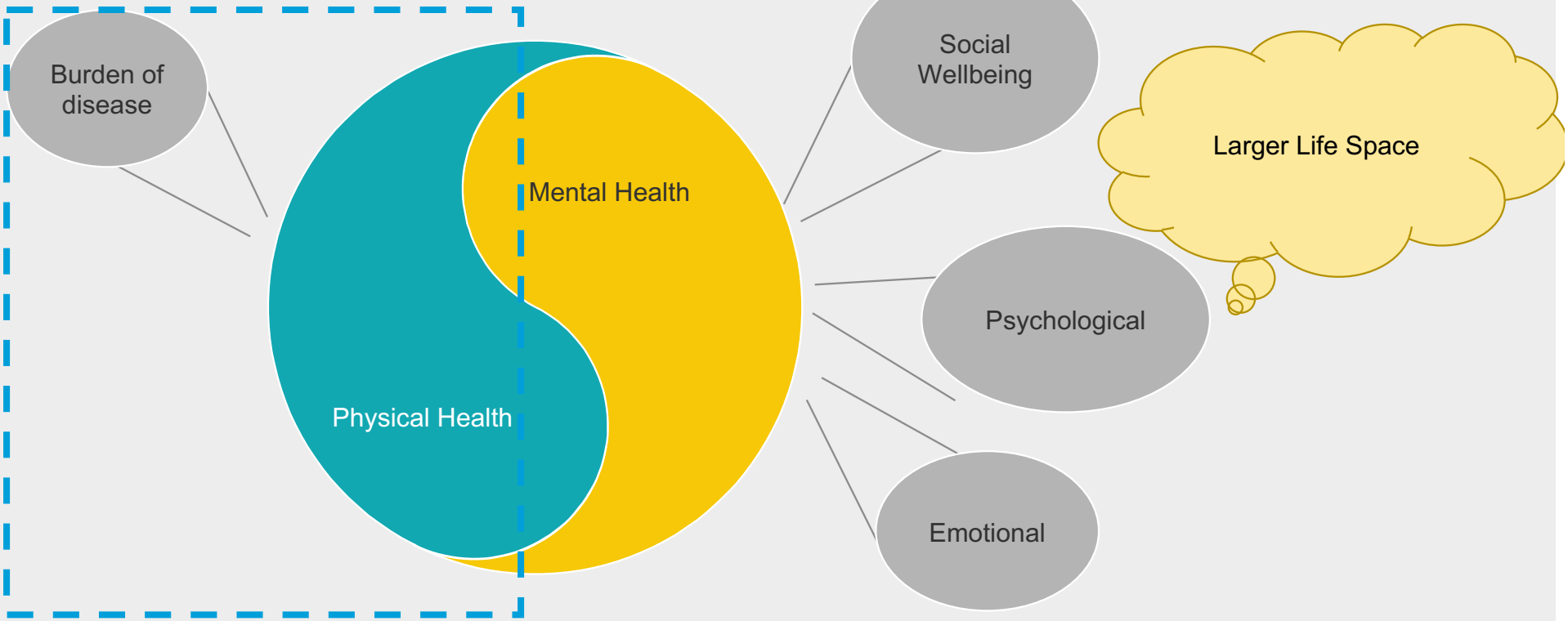

October 2014
28.0%
26.0%
24.0%
22.0%
20.0%
18.0%
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
NZ%
10.0%
15.0%
20.0%
25.0%
30.0%
35.0%
40.0%
45.0%
Netherlands%

Why focus on electric bicycles?

Mode	Mean (MET)	Median (MET)
Conventional Cycling	6.1	8.5
Electric Assisted Cycling	4.9	8.3



Active Modes Health Impacts

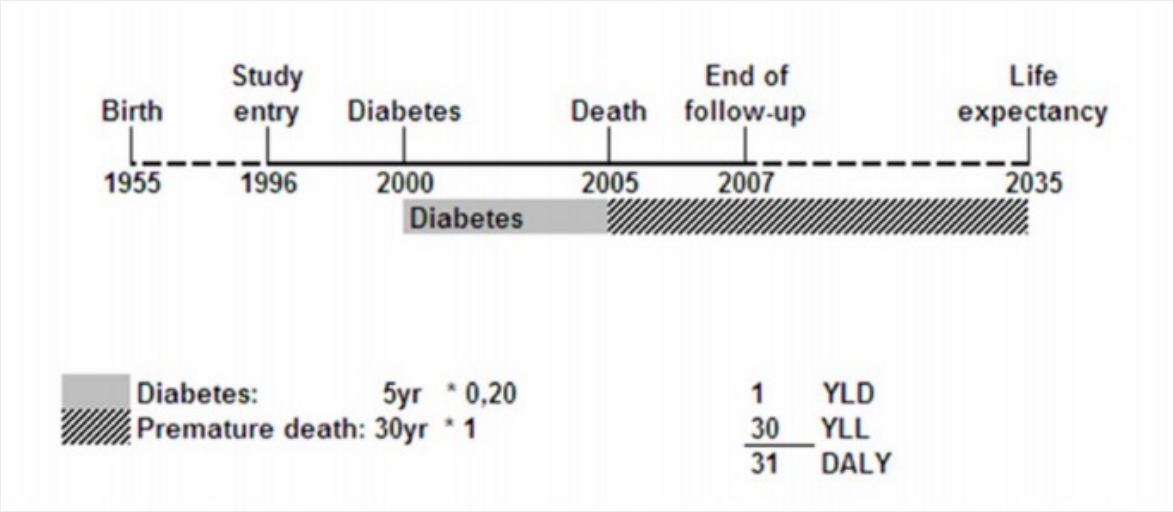


Health Valuation

Life Quality and Expectancy Quantification

Approach 1

Disability-Adjusted Life Year (DALY): Burden of disease and health loss



Approach 2

Mortality and morbidity approach. Considers mortality and morbidity attributable to physical inactivity (e.g. breast cancer, colorectal cancer, hypertension, CHD/IHD, stroke, osteoporosis, diabetes T2, depression)

Active Modes Health Benefits

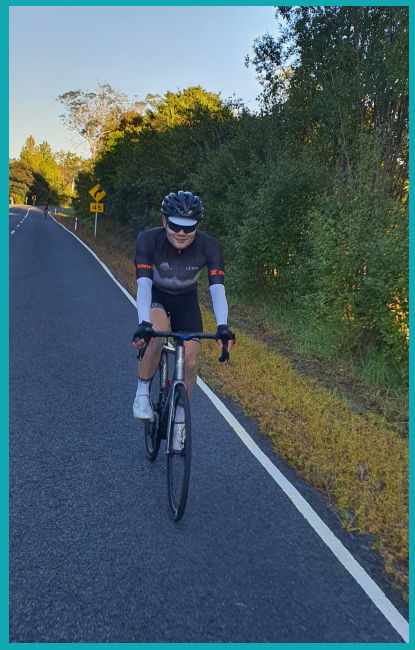
Assuming ~50% of new users are inactive

$5,000 /inactive person per year → $2,500 / new user per year → $2.20 / km for new cyclist
$1.00 / km for new e-cyclist

Active mode type	Health benefits for new user ($/km)
Conventional cycling	$2.20
Walking	$4.40
Electric assisted cycling	$1.00

Gaps and Opportunities

- Further mental health benefits research
- Equity distributional impacts reported
- Opportunity to further understand the impact on vehicle ownership and operating costs with access to conventional / electric bicycles
- Air pollution / emission costs to include health impacts (economic spillover externality for motorised vehicles)



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