

91584MR



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD
KIA NOHO TAKATŪ KI TŌ ĀMUA AO!

Te Pāngarau me te Tauanga (Tauanga), Kaupae 3, 2016

91584M Te aromātai i ngā pūrongo tauanga

2.00 i te ahiahi Rāpare 24 Whiringa-ā-rangi 2016
Whiwhinga: Whā

PUKAPUKA RAUEMI

Tirohia tēnei pukapuka hei whakatutuki i ngā tūmahi mō Te Pāngarau me te Tauanga (Tauanga) 91584M.

Tirohia mēnā e tika ana te raupapatanga o ngā whārangi 2–7 kei roto i tēnei pukapuka, ka mutu, kāore tētahi o aua whārangi i te takoto kau.

KA TĀEA TĒNEI PUKAPUKA TE PUPURI HEI TE MUTUNGA O TE WHAKAMĀTAUTAU.

PŪRONGO 1

Kua kitea e tētahi mātai nō Aotearoa ngā painga o ngā whakahekenga utu mō ngā kai whai oranga

He whaitake ake ngā whakahekenga utu i te mātauranga kaiora mō te whakatenatena i ngā tāngata ki te hoko i ngā kai whai oranga ake, e ai ki tētahi rangahau nō Aotearoa, te mea tuatahi o tōna momo i te ao katoa.

I kī te kairangahau matua a Tākuta Cliona Ni Mhurchu o Te Whare Wānanga o Tāmaki Makaurau, “Ko tā mātou mātai te tuatahi o tōna momo ki te whakamātautau i ngā pānga o te whakaheke i ngā utu o ngā kai whai oranga i roto i tētahi āhuatanga tūturu. E whakaata ana ngā kitenga i te hiranga o te whiriwhiri i ngā whakaritenga utu, kua hoki e waiho noa iho ki te tangata anake ki te whakapai ake i ngā kaiora o ngā tāngata o Aotearoa.”

I whakahaerehia te mātai The Supermarket Health Options Project (SHOP) mai i te tau 2008 ki te tau 2009, me te whai haere i ngā hokonga kai a ngā kaihoko 1104 i ngā hokomaha PAK’nSAVE e waru i te taha whakarunga o Te Ika-a-Māui. I whakarōpūtia ngā tīpakonga kai me ngā inu waipiro-kore i te hokomaha hei “whai oranga ake”, mā te whakarerekētanga ki te paearu ‘Tick’ a te National Heart Foundation. I kohia ngā mōhiohio hokonga mai i ngā raraunga hokohoko o ngā matawai tāhiko.

I tukuna matapōkeretia ngā kaihoko o te mātai ki ngā whakahekenga utu o te 12.5 ōrau ki ngā kai whai oranga ake mō te ono marama, ki te whiwhi rānei i ngā mātauranga kaiora rawa, whaiaro hoki i roto i taua wā ōrite anō. I muri i te ono marama, i whakatauritehia te rahi o ngā kai “whai oranga ake” i hokona mai e ia kaihoko (ā-kirokaramu i te wiki) ki te rahi i hokona mai i te tīmatanga o te mātai, hei tātai i te rerekē o te rahi o ngā kai “whai oranga ake” i hokona mai.

Ko te pikinga tau toharite o te rahi o ngā kai “whai oranga ake” i hokona mai e ngā kaihoko i whiwhi whakahekenga utu he tata ki te 0.28 kg, ā, ko te piki tau toharite o te rahi o ngā kai “whai oranga ake” i hokona mai e ngā kaihoko i whiwhi mātauranga kaiora he tata ki te –0.51 kg.

He mea urutau mai i C. N. Mhurchu, *New Zealand study proves benefit of price discounts on healthy food* (HRC154), (Tāmaki Makaurau: Health Research Council of New Zealand, 2010).

PŪRONGO 2a

Kei te tautoko te nuinga i te whakawhāiti i te kai huka

Kei te tuku tautoko te nuinga o ngā pakeke o Aotearoa i roto i tētahi rangahau mō te whakawhāiti i te rahinga o te huka e whāngaia mai ana ki a tātou e te rāngai inu waireka. Whā tekau mā ono ōrau i kī me “tino” whakawhāiti i te huka i roto i ngā inu, ā, he 32 ōrau atu anō i kī “tērā pea” me whakarite whakawhāitinga – neke atu i te 75 ōrau te tapeke.

Heoi, he tino iti ake ngā tāngata i tautoko ki te tāke i ngā kai huka i roto i ngā inu, ā, 18 ōrau i kī “tino” me te 26 ōrau i kī “tērā pea” – 44 ōrau te katoa. Whā tekau ōrau i kī me tino tāke, me tāke pea ngā kai huka kei roto i ngā maukai¹, ā, 59 ōrau i tino hiahia, hiahia pea rānei ki te whakaheke i te rahinga rato o ngā inu whai huka.

I whakaritehia, i whakahaerehia hoki te rangahau e Horizon Research mai i te 24 o Kohitātea ki te 14 o Huitanguru 2014, ā, 3451 ngā kaiurupare. He 1.7 ōrau te pae hapa. I tūpono atu te rā whakamutunga o te wā rangahau toru wiki, i tērā Paraire, ki te whakaputanga o te mātai tuatahi e aromātai ana i te pānga matenga i Aotearoa o tētahi tāke 20 ōrau ki ngā inu mirumiru. I kitea ka tāea e tēnei tāke te ārai, te pāhu rānei i ngā matenga 67 i te tau, he 0.2 ōrau tēnei o ngā matenga katoa.

He mea urutau mai i: M. Johnston, ‘Most back curbs on sugar use’, *New Zealand Herald*, 18 Huitanguru 2014.

¹ ō rangaranga

REPORT 1

New Zealand study proves benefit of price discounts on healthy foods

Price discounts are more effective than nutrition education in encouraging people to buy healthier foods, according to New Zealand research that is the first of its kind internationally.

Lead researcher Dr Cliona Ni Mhurchu from The University of Auckland said “Our study was the first of its kind to test the effects of price reduction on healthier foods in a real-life setting. The results highlight the importance of considering pricing interventions rather than relying exclusively on personal responsibility to improve the diets of New Zealanders.”

The Supermarket Health Options Project (SHOP) study ran from 2008 to 2009, and tracked the food purchases of 1104 shoppers at eight PAK’nSAVE supermarkets in the lower North Island. A selection of foods and non-alcoholic beverages available at the supermarket were classified as “healthier”, using a modification of the National Heart Foundation’s ‘Tick’ criteria. Purchase information was collected using electronic scanner sales data.

Shoppers in the study were randomly allocated to either price discounts of 12.5 per cent on healthier foods for six months, or to receive intensive, personalised nutrition education over the same time period. After six months, the amount of “healthier” food purchased by each shopper (in kg per week) was compared to the amount purchased at the beginning of the study, to measure the change in the amount of “healthier” food purchased.

The mean increase in the amount of “healthier” food purchased by the shoppers who received price discounts was approximately 0.28 kg, while the mean increase in the amount of “healthier” food purchased by the shoppers who received nutrition education was approximately –0.51 kg.

Adapted from: C. N. Mhurchu, *New Zealand study proves benefit of price discounts on healthy food* (HRC154), (Auckland: Health Research Council of New Zealand, 2010).

REPORT 2a

Most back controls on sugar use

A majority of Kiwi adults have shown some support in a survey for controls on how much sugar can be fed to us by the soft-drink industry. Forty-six per cent said there should “definitely” be limits on sugar in drinks and a further 32 per cent said there should “possibly” be such limits – more than 75 per cent in total.

In contrast, far fewer people supported a tax on the sugar content of drinks, with 18 per cent saying “definitely” and 26 per cent “possibly” – 44 per cent combined. Forty per cent said the sugar content of takeaways should definitely or possibly be taxed, and 59 per cent definitely or possibly favoured a reduction in the serving sizes of sugar drinks.

The survey was commissioned and conducted by Horizon Research between 24 January and 14 February 2014 and involved 3451 respondents. The margin of error was 1.7 per cent. The final day of the three-week survey period, last Friday, coincided with the release of the first study assessing the New Zealand mortality impact of a 20 per cent tax on fizzy drinks. It found such a tax could avert or postpone 67 deaths a year, which is 0.2 per cent of all deaths.

Adapted from: M. Johnston, ‘Most back curbs on sugar use’, *New Zealand Herald*, 18 February 2014.

PŪRONGO 2b

Horizon Research – Ngā Kino i Kitea mai i te Whakamahi Huka me ngā Kōwhiringa Kaupapa Here

Ngā pātai me ngā otinga pae taumata

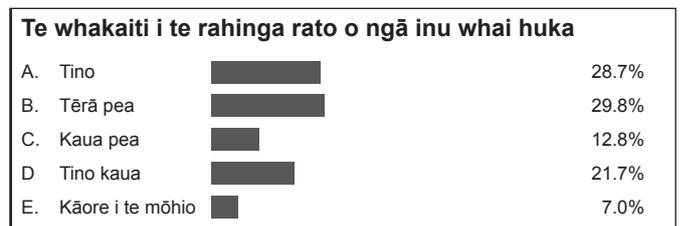
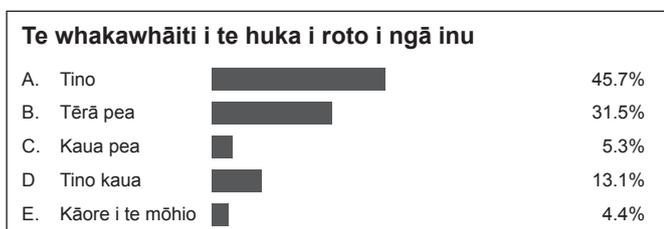
He rangahau tēnei o ngā kaiurupare 3 451 o te rōpū whiriwhiri ā-motu o Horizon Research HorizonPoll e whakakanohi ana i te taupori o Aotearoa nō ngā tau 18+, i whakahaerehia i waenga i te 24 o Kohitātea me te 14 o Huitanguru 2014. Ka whai rītaha ngā otinga mā te pakeke, ira tangata, mātāwaka, tohu mātauranga, tūranga mahi, me te rōpū i pōtīhia i te pōtītanga whānui 2011 hei whakarato i tētahi tīpakotanga whakakanohi i te taupori pakeke. Ko te pae hapa he $\pm 1.7\%$.

I tuku whakamārama poto atu ki ngā kaiurupare mō “Te Huka i roto i ā tātou Kai” i mua i te tuku pātai mō te rangahau. Kei raro ko tētahi wāhanga o ēnei kōrero i tukuna:

E kīia ana tata ki te 32 ngā tīpune huka ka kainga e ia tāngata o Aotearoa i ia rā. He 5 tīpune te tūtohu a te World Health Organisation. Ko te tūtohu a Te Manatū Hauora o Aotearoa kia kaua e nui atu te rahinga kai huka i te 15% o ngā hiahia pūngao tapeke i ia rā. Ko te toharite, tata ki te ki te 20 ōrau te rahinga e kainga ana e ngā tāngata o Aotearoa. Engari ka hunaia e ngā toharite ngā kainga nui a ētahi tāngata me te iti ake o te kai a ētahi atu. Ko te tohe a ētahi kua roa e mōhio ana ko te kai huka nui te pūtake o ngā mate maha, tae atu ki te mate huka, te raru o te pūnaha ārai mate, pīrau niho, me ngā mate taumaha pēnei i te mate pukupuku me te mate manawa. E kīia ana ka waranga anō te kai huka. E tohe ana ētahi atu me kai huka hei wāhanga o te kai 'whai painga, taurite, pārekareka hoki', kāore he whakaawenga kino ki ngā mate – 'i tua atu i tētahi pānga tino iti' – ka mutu ehara i te waranga ...

Kei raro ko ngā pātai e whā mō te kai huka i whakamahia i roto i te rangahau me ngā ōrautanga rangahau.

E whakapono ana koe me whakatau a Aotearoa i ētahi o ēnei e whai ake hei whakaiti i te kai huka?



He mea urutau mai i: G. Colman rāua ko G. McInman, *Perceived harm from sugar use and policy options* (Questions and top line results), (Tāmaki Makaurau, Horizon Research Limited, 2014).

REPORT 2b

Horizon Research – Perceived Harm from Sugar Use and Policy Options

Questions and top line results

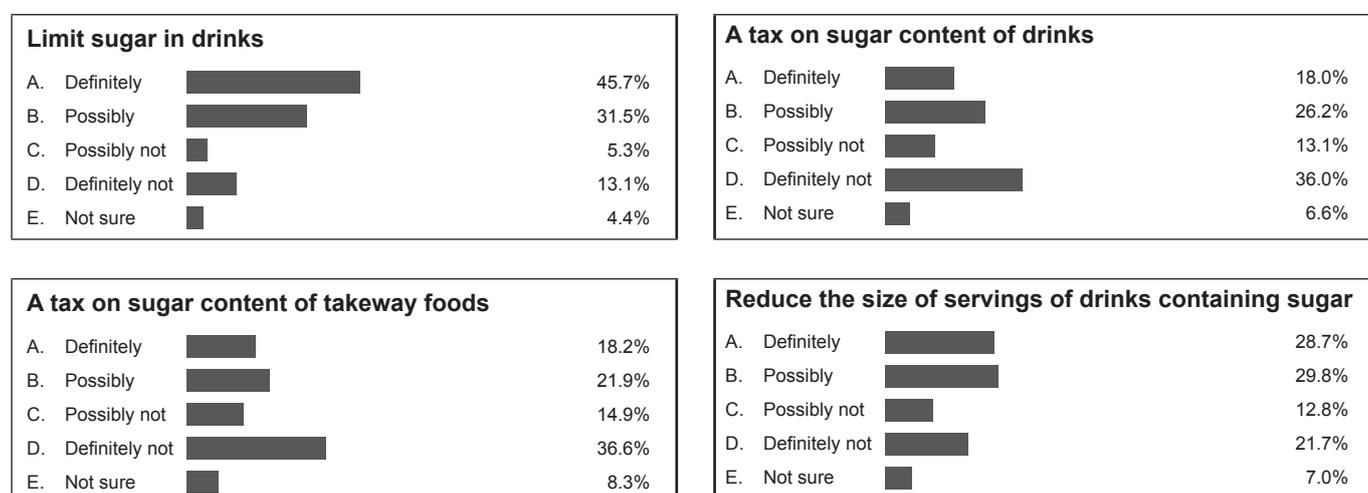
This is a survey of 3 451 respondents of the Horizon Research HorizonPoll national panel representing the New Zealand population aged 18+, conducted between 24 January and 14 February 2014. Results are weighted by age, gender, ethnicity, educational qualifications, employment status, and party voted for at the 2011 general election to provide a representative sample of the adult population. The margin of error is $\pm 1.7\%$.

Respondents were provided with a brief background on “Sugar in our Diet” before being asked the questions for the survey. Below is an extract of this information provided:

New Zealanders are reported to consume an estimated 32 teaspoons of sugar per day. The World Health Organisation recommends 5 teaspoons. The Ministry of Health in New Zealand recommends total sugar intake should not exceed 15% of total energy needs per day. On average, Kiwis eat around the 20 per cent level. But averages mask high intakes by some people and a lower intake by others. Some argue that a diet high in sugar has always been known to cause many health problems, including diabetes, impaired immune system, tooth decay, and deadly diseases like cancer and heart diseases. They say sugar can also be addictive. Others argue sugar can be enjoyed as part of a ‘nutritious, balanced and enjoyable’ diet, that it has no negative influences on any disease – ‘other than a partial contribution’ – that it’s not addictive ...

The four questions about sugar consumption used in the survey are provided below with the survey percentages.

Do you believe New Zealand should impose any of the following in order to reduce sugar consumption?



Adapted from: G. Colman and G. McInman, *Perceived harm from sugar use and policy options* (Questions and top line results), (Auckland, Horizon Research Limited, 2014).

PŪRONGO 3

Ngā whaina nui ake hei whakapāhunu i te whakamahinga poka noa o ngā tūnga waka mō te hunga hauā

Kua iti haere ake te whakamahi poka noa a te hunga pakari i ngā tūnga waka hauā, engari kei te tino hē mō te CCS Disability Action.

I whakaaturia e tētahi mātai ā-motu i te Whiringa-ā-nuku o tērā tau (2008) i te heke o te maha o ngā waka/tāngata e whakamahi ana i te tūnga waka hauā me te kore whakaatu whakaaetanga whaimana mai i te 40% ki te 34% ina whakatauritea ki tētahi mātai o mua nō te tau 2006.

I whai wāhi mai ngā peka 16 o te whakahaere ki te rangahau o te tau 2008, ā, tata ki te 40 ngā tūnga waka hauā me te mātakitaki i ngā waka/tāngata tata ki te 500, te kī a te kaiwhakahaere whakawhanake ā-motu a Peter Wilson. I whāia ko ngā tūnga waka hauā tūtata ki te mīhini ATM, ngā tari kaunihera me ngā hokomaha.

I muri i tētahi rangahau ōrite i oti i te tau 2006, i whakapau kaha a CCS ki te whakapiki i te whaina mai i te \$40 ki te \$150 mō te whakamahi hē ā-ture i te tūnga waka hauā. I mana tēnei i te Pipiri o tērā tau (2008). Mai i tērā wā, i “tino heke” te maha o te hunga e whakamahi poka noa i ngā tūnga waka hauā, engari i te tino maha tonu ngā tata, te kī a Mr Wilson.

I kitea i te rangahau o te tau 2008 ko ngā tāne te tino hunga ka whakamahi poka noa i ngā tūnga waka hauā, he 59% o rātou i kitea e tū ana i tētahi tūnga waka hauā me te kore whakaaetanga he tāne. Ahakoa kāore i te tino mōhiotia he aha i pēnei ai, ko te whakapae a Mr Wilson ko te tikanga he ngākau mahara ake ngā wāhine i ngā tāne.

I kī ia me nui ake ngā whakaaroaro ki ngā pānga o te tū hē ā-ture ki tētahi tūnga waka hauā. Tērā pea ka tino hē te rā o tētahi tangata – ahakoa i tū noa he tangata i reira mō te rima meneti anake, ko te mea kē kāore i āhei atu he tangata hauā ki te tūnga waka i te wā i hiahia ia.

Ko te pae hapa mō te rangahau 2006 he 3.8%, ā, ko te pae hapa mō te rangahau 2008 he 4.5%.

He mea urutau mai i: E. Constantine, ‘Higher fines discourage disability parking abuse’, *Otago Daily Times*, 7 Huitanguru, 2009.

REPORT 3

Higher fines discourage disability parking abuse

Instances of able-bodied people misusing disability parks have dropped, but not enough for CCS Disability Action's liking.

A national study carried out in October last year (2008) showed the number of cars/people using a disability park without displaying a current permit decreased from 40% to 34% compared to a previous study in 2006.

The 2008 survey involved the organisation's 16 branches, about 40 disability parks and the observation of about 500 cars/people, national development manager Peter Wilson said. Disability parks near ATMs, council offices and supermarkets were targeted.

After a similar survey completed in 2006, CCS worked at getting a fine increase from \$40 to \$150 for illegally using a disability park. This came into effect in June last year (2008). Since then, there had been a "measurable drop" in the number of people misusing disability parks, but overall the number was still high, Mr Wilson said.

The 2008 survey found that males were more likely to abuse parks, with 59% of those observed parking in a disability park without a permit being male. Though unsure of why this was, Mr Wilson speculated it might be because women were more considerate than men.

More thought needed to go into the implications of illegally parking in a disability park, he said. It could ruin someone's day – even if a person parked there for just five minutes, it still meant a disabled person could not access the park when they needed to.

The margin of error for the 2006 survey was 3.8%, while the margin of error for the 2008 survey was 4.5%.

Adapted from: E. Constantine, 'Higher fines discourage disability parking abuse', *Otago Daily Times*, 7 February, 2009.

English translation of the wording on the front cover

**Level 3 Mathematics and Statistics
(Statistics), 2016**

91584 Evaluate statistically based reports

2.00 p.m. Thursday 24 November 2016
Credits: Four

RESOURCE BOOKLET

Refer to this booklet to answer the questions for Mathematics and Statistics (Statistics) 91584M.

Check that this booklet has pages 2–7 in the correct order and that none of these pages is blank.

YOU MAY KEEP THIS BOOKLET AT THE END OF THE EXAMINATION.