women's health australia

the australian longitudinal study on women's health

www.alswh.org.au

Trends in women's health:
Results from the Australian Longitudinal Study on Women's Health
Chronic conditions, risk factors and health behaviours

Summary of findings

Authors: Wendy Brown, Julie Byles, Gretchen Carrigan, Annette Dobson, Xenia Dolja-Gore, Richard Gibson, Richard Hockey, Jennifer Powers, Anne Russell, Melanie Spallek and Anne Young

The Australian Longitudinal Study on Women's Health (ALSWH) is a longitudinal population-based survey funded by the Australian Government Department of Health and Ageing. The project began in 1996 and involves 3 large cohorts of Australian women representing three generations:

- Younger women, aged 18 to 23 years when recruited in 1996 (n=14247)
- Mid-aged women, aged 45 to 50 years in 1996 (n=13716)
- Older women, aged 70 to 75 years in 1996 (n=12432).

The women have been surveyed four times over the past 10 years providing a large amount of data on lifestyles and health outcomes (see Table 1).

This report addresses the following questions:

- What are the prevalence and incidence rates of selected **chronic conditions** among the three age groups of participants in the ALSWH, and how have these changed over the first 9 years of the study?
- What are the characteristics of women with different chronic conditions?
- What long-term effects do **risk factors** have on women's health?

The following conditions were selected for this report:

- **heart disease**
- **hypertension**
- **osteoporosis**
- **diabetes**
- **asthma**
- **arthritis.**

In addition trends are presented for summary measures of

- **mental and physical health**
- **use of health services**
- activities aimed at **disease prevention**
- some **behavioural risk factors**

Table 1. Schedule of Surveys for the Australian Longitudinal Study on Women's Health

	Survey 1	Survey 2	Survey 3	Survey 4	Survey 5	Survey 6	Survey 7
Young	(1996) 18-23 yrs	(2000) 22-27 yrs	(2003) 25-30 yrs	(2006) 28-33 yrs	(2009) 31-36 yrs	(2012) 34-39 yrs	(2015) 37-42 yrs
Mid	(1996) 45-50 yrs	(1998) 47-52 yrs	(2001) 50-55 yrs	(2004) 53-58 yrs	(2007) 56-61 yrs	(2010) 59-84 yrs	(2013) 62-67 yrs
Older	(1996) 70-75 yrs	(1999) 73-78 yrs	(2002) 76-81 yrs	(2005) 79-84 yrs	(2008) 82-87 yrs	(2011) 85-90 yrs	(2014) 88-93 yrs

Trends in women's health: Time and life stage

Current models of health promotion emphasise that health promotion needs to start at conception and continue across the life course. At different stages of life the focus for prevention changes as summarised in Table 2. Our results are reported using this framework.

Table 2. A life course model of health promotion

Stage 1 Early life and adult capacity	Stage 2 Reducing health risks and maintaining capacity	Stage 3 Minimising the impact of chronic conditions
• Building resources (nutrition, physical activity, healthy weight and education)	• Avoiding damage (from smoking and alcohol, hypertension or high cholesterol) • Reducing loss of health (good nutrition and maintaining physical and mental activity)	• Good management of chronic conditions • Protection against injury and other stress • Physical and social support

STAGE 1: Early life and adult capacity

Weight and Body Mass Index (Figure 1)

- In Survey 1, Younger women had the lowest average weight and BMI.
- Younger women's weight increased over time. At Survey 1, 1 in 10 was underweight and this halved to 1 in 20 by Survey 3.
- At Survey 1, 20% of Younger women were classified as overweight or obese. This increased to more than 30% during the first 9 years of the study.

Physical Activity

- Just over 1 in 2 women in the Younger cohort (55%) were classified as 'active' according to the National Physical Activity Guidelines for Australians.

Education

- Education mainly obtained in early life is strongly associated with health in later life. Examples include:
- Mid-aged and Older women with lower levels of education were more likely to report having hypertension at Survey 1.
- The prevalence and incidence of diabetes were significantly higher for Mid-aged and Older women with lower levels of education.
- There was significantly higher prevalence and incidence of asthma among Younger women with lower levels of education.
- Mid-aged women with lower levels of education had statistically higher prevalence and incidence of osteoporosis than more educated women in this age cohort.

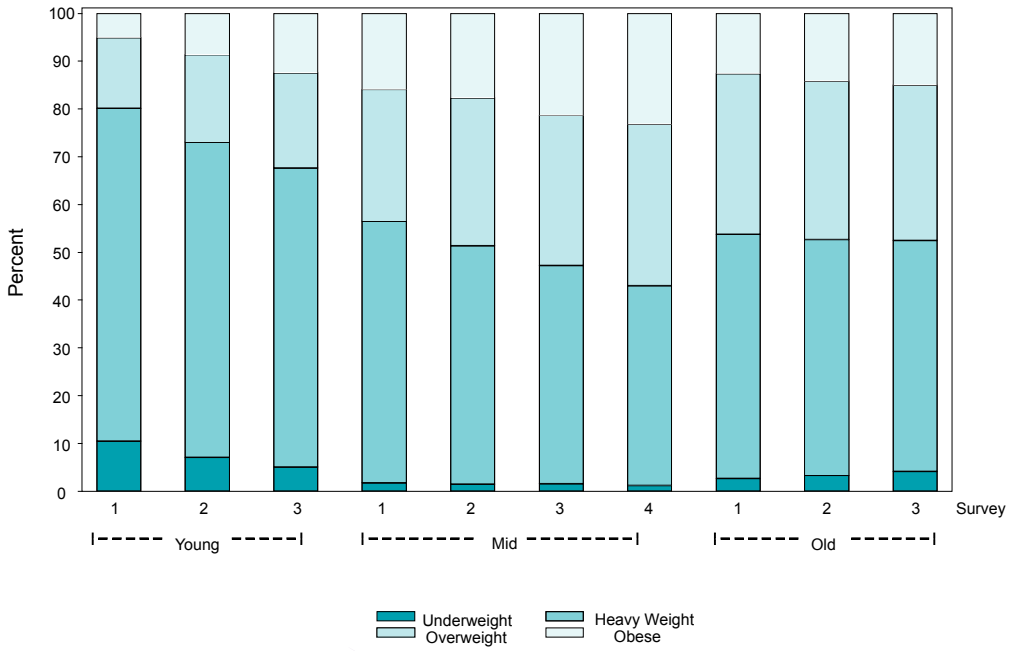

Figure 1. Percentages of women in each BMI category (based on self-reported height and weight) for each age cohort for Surveys 1, 2, 3 & 4 (Mid-aged only), from 1996 to 2004.

STAGE 2: Reducing health risks and maintaining capacity

Physical Activity (Figure 2)

- While the population prevalence of physical activity appeared to be constant over time in the young women, (55% 'active' in 2000 and 2003), about 1 in 4 young women (22.3%) changed their activity status from 'inactive' to 'active', and the same proportion (22.4%) moved from being 'active' to 'inactive'. Only one third (36.4%) were classified as 'active' at Surveys 2 and 3.
- While the proportion of Mid-aged women classified as 'active' at Survey 3 (2001:46%) was lower than the proportion of Younger women classified as 'active' at Survey 2 (2000: 55%), at the subsequent surveys the proportion of Mid-aged and Younger women classified as 'active' was almost the same (Mid-aged 2004: 54%; Younger 2003: 55%).
- The Mid-aged women have become more active over time. The increasing levels of physical activity in this group can be largely attributed to an increase in time spent walking.
- Population levels of physical activity decreased in the Older cohort. This was driven by an increasing number of women who were in the 'none' category, rather than a decrease in activity time in those women who remained active.

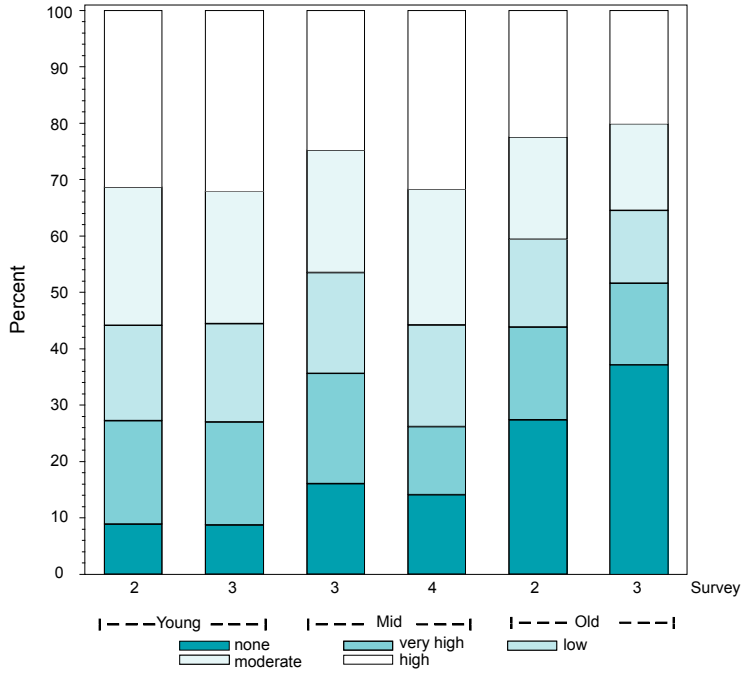

Figure 2. Percentages of women in each physical activity category for all age cohorts over time.

Fruit and Vegetable consumption

- Mid-aged women ate more fruit and vegetables than Younger women.
- Less than 2 in 5 Younger women ate 2 or more pieces of fresh fruit per day, the amount recommended by the Australian Government Department of Health and Ageing's Go for 2&5™ campaign.
- More than half of the Mid-aged women ate 2 or more pieces of fresh fruit per day.
- Only 9% of Younger women and 11% of Mid-aged women ate the recommended 5 or more different vegetables per day.

Smoking (Figure 3)

- The proportion of smokers in the Younger cohort decreased over time. At Survey 3, fewer than 1 in 4 Younger women were classified as smokers. 1 in 4 Younger women changed their smoking habits over time.
- The smoking habits of Mid-aged women were fairly consistent over time.

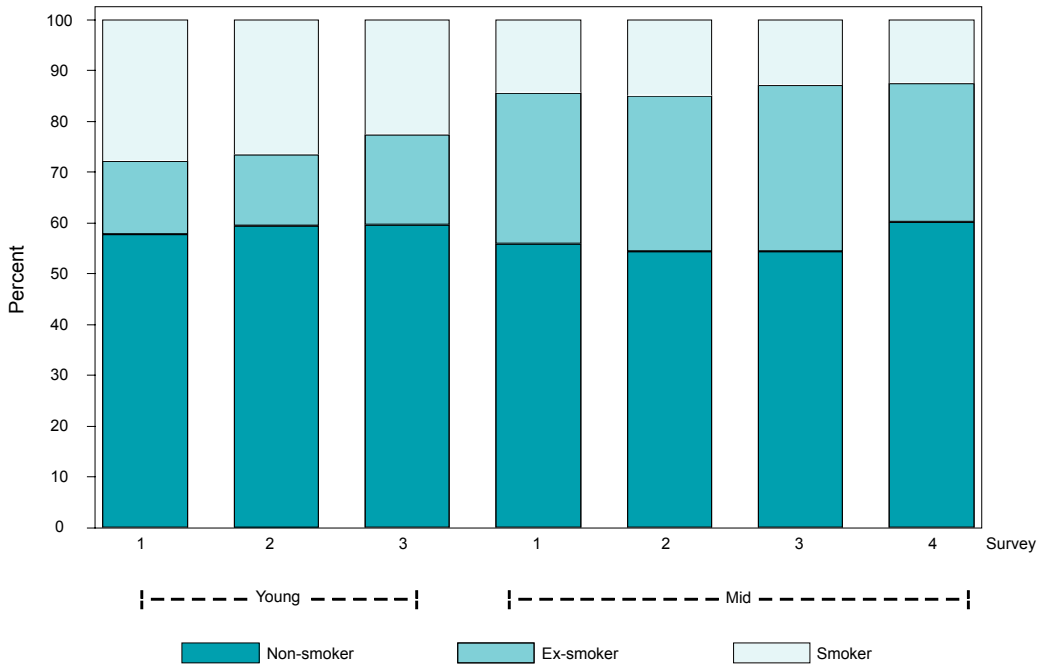

Figure 3. Percentages of women in each cigarette smoking category for each age cohort over time.

Alcohol

- A clear majority of respondents to the surveys were non-drinkers or drank at low levels of long-term risk, although some of these women reported short-term risk drinking (having 5 or more drinks on one occasion).
- Among Younger and Mid-aged women, half were low risk drinkers, one third occasionally drank and only 5% drank at levels that were risky to their long-term health.
- Among Older women, one third were low risk drinkers, one quarter occasionally drank, and almost one third were non-drinkers. Only 3% drank at risky levels.
- Consuming alcohol at levels of risk to short-term health (5 or more drinks on one occasion) at least weekly was more common among Younger women (18%) than Mid-aged (6%) or Older women (2%). Younger women were more likely than Mid-aged or Older women to decrease their alcohol consumption from levels that were risky to their health.
- Non-drinkers were more likely to be non-smokers and from a non-English speaking background, and among Younger women, to be pregnant or mothers.
- Low risk drinkers (up to 2 drinks a day) had more education, exercised more often and had better self-rated health than non-drinkers.

Table 3. Relationships between prevalence (existing cases) and incidence (new cases) of chronic conditions and risk factors for Younger women in the Study, Surveys 1 to 3.

		BMI	Physical Activity	Smoking	Alcohol	Education
Hypertension	Existing	↑ ↑ ↑#		↑ ↑		
	New	↑ ↑		↑		
Heart Disease	Existing					
	New					
Diabetes	Existing	↑ ↑ ↑		↑		
	New	↑ ↑ ↑				
Asthma	Existing	↑ ↑ ↑				↓
	New	↑ ↑				↓

Arrows represent the strength and direction of association between chronic conditions and risk factors. Empty cells indicate that there is no relationship between the condition and risk factor.

Illicit drug use

- 2 in 5 women in the Younger cohort had never used illicit drugs of any kind.
- Of those Younger women who had used drugs, a majority exclusively used marijuana.
- There was an overall trend of decreased drug use in the Younger cohort with the percentage of past (but not present) users increasing from 29% to 41%.
- The prevalence of multiple drug use was relatively consistent over time at around 15%. Around 2 in 3 women who were recent multiple drug users at Survey 2 reported being a recent user at Survey 3 also.
- Women in rural areas were less likely to have ever used drugs or to have been multiple drug users than their urban counterparts.

Table 4. Relationships between prevalence (existing cases) and incidence (new cases) of chronic conditions and risk factors for Mid-aged women in the Study, Surveys 1 to 4.

		BMI	Physical activity	Smoking	Alcohol	Education
Hypertension	Existing	↑ ↑ ↑#	↓		U##	↓
	New	↑ ↑			U	
Heart disease	Existing	↑ ↑ ↑	↓ ↓	↑ ↑	↓	
	New	↑ ↑ ↑	↓ ↓	↑ ↑		
Diabetes	Existing	↑ ↑ ↑		↑	↓ ↓ ↓	↓ ↓
	New	↑ ↑ ↑		↑	↓	↓ ↓
Asthma	Existing	↑ ↑ ↑	↓ ↓	↑	U	
	New	↑ ↑ ↑	↓ ↓		U	
Osteoporosis	Existing	↑			↓	↓
	New	↑	↓		↑	↓
Arthritis	Existing	↑ ↑ ↑		↑		↓ ↓
	New					

Arrows represent the strength and direction of association between chronic conditions and risk factors.
U's represent the strength of a U-shaped relationship, indicating that risk of disease was higher for non-drinker and risky drinkers, but lower for moderate drinkers. Empty cells indicate that there is no relationship between the condition and risk factor.

Chronic conditions

- Common risk factors are strongly associated with the prevalence and incidence of chronic conditions, which are shown in Tables 3, 4 and 5 for the Younger, Mid-aged and Older cohorts respectively.
- Overweight and obesity were significantly associated with increased prevalence and incidence rates of hypertension, heart disease, diabetes, asthma and arthritis in all cohorts.
- For women in the Mid-aged cohort, there was a moderate association between tobacco smoking and heart disease.

Table 5. Relationships between prevalence (existing cases) and incidence (new cases) of chronic conditions and risk factors for Older women in the Study, Surveys 1 to 3.

		BMI	Physical activity	Smoking	Alcohol	Education
Hypertension	Existing	↑ ↑ ↑#	↓		U##	↓
	New					
Heart disease	Existing	↑ ↑ ↑	↓ ↓		↓	
	New	↑ ↑ ↑	↓ ↓		↓	
Diabetes	Existing	↑ ↑ ↑	↓ ↓		↓ ↓ ↓	↓ ↓
	New	↑ ↑ ↑	↓		U	↓ ↓
Asthma	Existing	↑ ↑ ↑	↓ ↓		U	
	New	↑ ↑ ↑	↓ ↓		U	
Osteoporosis	Existing	↑	↓		↑	
	New	↑			↑	
Arthritis	Existing	↑ ↑ ↑	↓ ↓			
	New					

Arrows represent the strength and direction of association between chronic conditions and risk factors.
U's represent the strength of a U-shaped relationship, indicating that risk of disease was higher for non-drinker and risky drinkers, but lower for moderate drinkers. Empty cells indicate that there is no relationship between the condition and risk factor.

- There was a U-shaped association between hypertension and alcohol consumption for Mid-aged women.
- Highest prevalence and incidence rates for the Mid-aged and Older cohorts were found for hypertension and arthritis, whereas for the Younger cohort the highest rates were for asthma.

Physical and mental health

Higher mental and physical health scores reflect better health.

- **Mental Health** scores increased over time for the Younger and Mid-aged women and tended to be higher in those who were partnered.
- In the Older cohort mental health scores were highest in women who had never married.
- Women who drank three or more drinks a day tended to be smokers, and had poorer mental health and among Younger women, were more likely to have used illicit drugs.
- Mid-aged and Older women were more likely to experience declining measures of **physical health** than Younger women.
- Marriage is associated with better physical and mental health of Mid-aged women.
- Physical health scores for Younger women did not change over time, whereas physical health scores declined for Mid-aged and Older women.
- The associations between chronic conditions and physical and mental health scores are shown in Table 6.

Table 6. Reduction in physical and mental health associated with chronic conditions.

		Younger		Mid-aged		Older	
		Physical	Mental	Physical	Mental	Physical	Mental
Hypertension	Existing	↓		↓↓		↓↓	
	New	↓		↓↓		↓	
Heart disease	Existing	↓		↓↓	↓	↓↓	
	New	↓↓		↓↓	↓	↓↓	
Diabetes	Existing	↓↓	↓↓	↓↓	↓	↓↓	↓
	New	↓	↓	↓↓	↓	↓	↓
Asthma	Existing	↓↓	↓	↓↓	↓	↓↓	
	New	↓↓	↓↓	↓↓	↓	↓↓	↓
Osteoporosis*	Existing			↓↓	↓↓	↓↓	↓
	New			↓	↓	↓	↓
Arthritis**	Existing			↓↓	↓	↓↓	
	New			↓	↓	↓	↓

* Questions on osteoporosis were not included in the surveys for the Younger cohort.
** Questions on arthritis were not included in the surveys for the Younger cohort.

Trends in women's health: urban, rural and remote areas

There were very few differences in health across urban, rural and remote areas.

- There was a higher prevalence of osteoporosis among the Mid-aged and Older women from urban areas. However this association is likely to be affected by higher rates of bone density assessment in urban areas.
- The only other condition for which the prevalence varied by area of residence was diabetes in the Younger women, where there was a much higher prevalence in small rural centres.
- Younger women living outside urban and large rural areas were more likely to be current smokers or ex-smokers than their urban counterparts.
- On the other hand, women living in urban areas were more likely than rural women to have tried illicit drugs at some time in their lives, and had the highest level of recent multiple drug use.

STAGE 3: Minimising the impact of chronic conditions

- In the Older and Younger cohorts women with hypertension, heart disease or diabetes (existing and new cases) were more likely to:
  - Consult a GP more than 4 times in the previous year.
  - Visit a specialist at least once during the previous year.
  - Be admitted to hospital during the previous year.
- These differences were not found in the Mid-aged cohort.

Early detection of chronic conditions

Early detection is one step in minimising chronic conditions progression and impact. Figure 4 shows the length of time since young and mid-aged women had a Pap test at each survey.

- There was an increasing uptake of Pap testing in the Younger cohort although at Survey 3 (2003) 1 in 10 women had never had the test.
- 9 out of 10 Mid-aged women eligible for a Pap test had had one within the last 2 years. The proportion of women who had never had a Pap test or were overdue for testing was highest among Younger women in small rural areas.
- Around 1 in 4 Younger and Mid-aged women reported ever having had an abnormal Pap result.
- An increasing percentage of Younger and Mid-aged women were becoming less satisfied with their ease of access to Pap testing over time. Ease of access was poorer in small rural and remote areas.

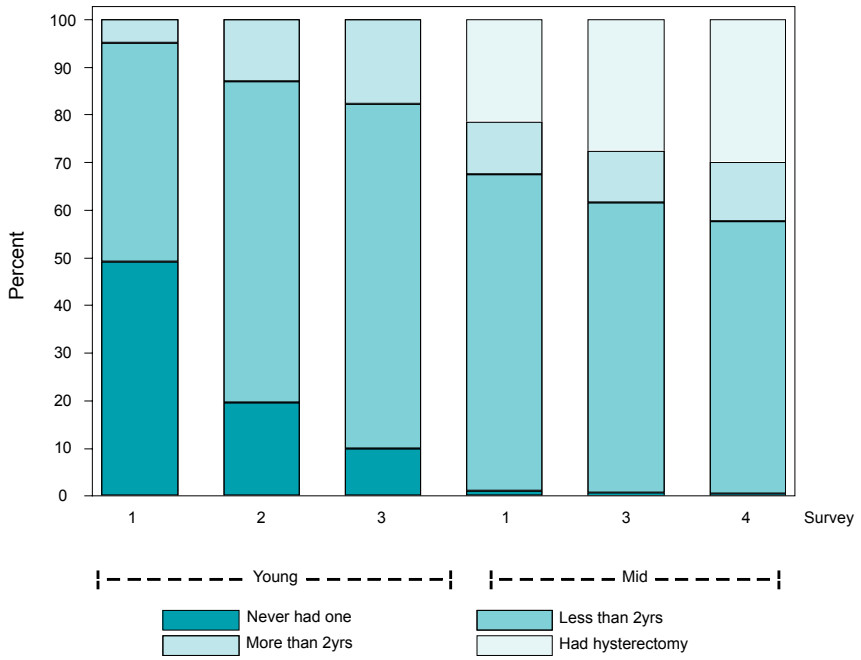

Figure 4. Time since last Pap test: data from Surveys 1, 2 and 3 for the Younger women and Surveys 1, 3 and 4 for the Mid-aged women.

- Almost 1 in 3 Mid-aged women had never had a **mammogram** at Survey 1 (1996) but this decreased to 1 in 20 by Survey 4 (2004). Mid-aged women in small rural areas reported poor ease of access to mammographic services compared with other geographic locations.
- 9 out of 10 Mid-aged women reported having had their **blood pressure** measured in the past 3 years at both Survey 3 (2001) and Survey 4 (2004). Prevalence of blood pressure checking was consistent across geographic areas.
- 6 out of 10 Mid-aged women in Survey 3 (2001) and 7 out of 10 Mid-aged women in Survey 4 (2004) reported having had their **cholesterol** checked by a doctor.

Health Service Use

- Findings about use of health services by women is based on self-reported data from 2000-2004. Use of services generally increased over time in all 3 age cohorts.
- Increasing use of health care services by Younger women was probably related to need for pregnancy-related health care.
- Mid-aged women were the lowest users of health care services and the Older women were the highest users.
- Almost half the Mid-aged women visited the same GP and the same GP practice 'always' or 'most of the time'.
- Only one quarter of Younger women visited the same GP and the same place 'always' or 'most of the time'.
- Younger women tended to be the most dissatisfied with health care services, followed by Mid-aged women and Older women.
- Access to a GP who bulk billed became worse over time, particularly for Younger and Mid-aged women.
- Levels of dissatisfaction with access to a GP who bulk billed doubled among Younger women (from 25% to 50%) and Mid-aged women (from 20% to 40%) over the time period studied.
- Being able to see the GP of choice became more difficult over time for women in all age groups.
- 1 in 3 of the Younger women found it difficult to see the GP of their choice.
- Among the Mid-aged and Older cohorts, consultations with medical practitioners were more frequent in urban areas than in non-urban areas, and women in urban areas were more likely to be satisfied with their ease of access to bulk billing medical services.

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

The UNIVERSITY of NEWCASTLE
AUSTRALIA

Summary

The most striking feature of the results presented in this Report is the adverse effect of overweight and obesity on the prevalence and incidence of vascular disease (hypertension, heart disease and diabetes) as well as asthma. In comparison none of the other risk factors examined showed such consistent and strong associations with chronic conditions. In light of the increasing weight in all age groups, weight gain clearly poses a major threat to the health of Australian women.

women's health australia

the australian longitudinal study on women's health

Find out more

For detailed information see the main report: *Trends in Women's Health: Results from the Australian Longitudinal Study on Women's Health. Priority Conditions, Risk Factors and Health Behaviours.*

For surveys, details of scientific publications, and other information see the project website:

www.alswh.org.au

or by contacting the research team at:

the University of Queensland
07 3346 4723 sph-wha@sph.uq.edu.au

the University of Newcastle
02 4923 6873 whasec@newcastle.edu.au

The Australian Longitudinal Study on Women's Health is funded by the Australian Government Department of Health and Ageing