Diet and nutrition: A literature review of factors influencing blue-collar apprentices

Karin du Plessis, Ph.D.
Incolink, Victoria

A nutrient-rich diet could assist apprentices to maintain a healthy body and mind. The nature of most construction industry apprenticeships is such that it requires concentration and moderate to high levels of physical activity, and consequentially apprentices need a diet which can support these required high energy demands. Anecdotally, apprentices display a range of dietary practices, which appear to be moderated by their taste preferences, nutritional beliefs and knowledge, environment (e.g., availability of food; healthful dietary messages) and degree of prescription to traditional masculine stereotypes.

The determinants of healthy eating, the effect of nutrition on mental health, gender differences in nutrition, and workplace programs are discussed in this literature review. Although no studies which specifically focus on apprentices’ diets have been identified, the literature will make inferences from related age groups and work environments. Due to this paucity of research, some researchers have specifically called for more focused nutrition interventions with young men (Walsh & Nelson 2010).

Introduction

Nutrients are consumed through the food that we eat, and through metabolic processes in the digestive system these nutrients are absorbed at a cellular level in the body (Gibney et al. 2009). Optimum nutrition contributes to health, wellbeing, normal development, and high quality of life (Gibney et al. 2009). However, undernutrition, overnutrition, and malnutrition are linked to sub-optimal health outcomes (Gibney et al. 2009). Such poor diets have been linked to the occurrence of chronic diseases, including cardiovascular disease, Type-2 diabetes, cancer, osteoporosis and anaemia (Lytle et al. 2002). For example, research reports that low intake of fruit and vegetables increases the risk for developing cancer (Steinmetz & Potter 1996), as well as cardiovascular disease (Hung et al. 2004), whereas low intake of dietary fibre has been linked to being overweight (Patrick et al. 2004).

Obesity is often a consequence of overnutrition, and it is an ever-increasing problem in both developing and food-secure countries, such as Australia (Gibney et al. 2009). A recent longitudinal study conducted in Victoria report on the significant increase of obesity from adolescence to adulthood (Patton et al. 2010). This study of 1520 adolescents tracked over a period of 10 years also highlights the decreased likelihood of overweight adolescents achieving a normal weight in adulthood (Patton et al. 2010). Frequently linked with a greater proneness to Type-2 diabetes (e.g., Wang, Hoy & Si 2010), obesity severely affects health-related quality of life in a range of domains, including, physical, social and psychological (Mannucci et al. 2010). However, factors influencing

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obesity and chronic diseases are more complex than diet alone. For example, together with increased sedentary behaviour, decreased physical activity has been shown to play a crucial role in becoming overweight and obese (Patrick et al. 2004). For the purposes of this project, and literature review, the focus will be on the diet and nutrition of apprentices, although the influence of other factors (e.g., lifestyle and environmental factors) is acknowledged, but noted as outside the scope of this project.

Determinants of healthy eating

Individuals’ reasons for buying and eating particular foods have been described as a “complex bio-psychosocial process that is relative to person, place and time” (Walsh & Nelson 2010, p. 194). Most researchers believe that dietary habits and food preferences develop in childhood, are established by age 15, and become habitual in due course (Birch 1999; Sweeting & Anderson 1994). Adolescence is thus still a key formative period in the development of eating habits (Walsh & Nelson 2010). Of interest is that some studies have identified a negative shift in the recommended nutrient consumption during adolescence, with reports that few adolescents are meeting recommend dietary guidelines (Patrick et al. 2004). For example, Lytle and colleagues (2002) conducted a large-scale longitudinal study of youth between the ages of 8 and 14, and found that their diets became less nutrient-dense over time. In particular, this study found that during adolescence young people’s diets showed an increase in fat, saturated fat and sodium, and a decrease in vitamins, minerals and fibre – these nutrients are all those implicated in chronic disease (Lytle et al. 2002). Adolescents have also been found to consume less than adequate amounts of fruits and vegetables. A large-scale study of 16,262 U.S. youth (with a mean age of 16 years) identified that only 22% of young women and 29% of young men consumed the recommended daily fruit and vegetable serves (Pesa & Turner 2001).

Construction industry apprentices (most often young men aged 16-24 years) could be considered ‘vulnerable’ due to the number of transitional issues and changes they face as they move from school to work. These changes include: Changes to their physical environment (e.g., moving out of the parental home; cohabiting with friends or a romantic partner), changes to their peer group (as new employees on a worksite, fellow-apprentices, new friends), changes in financial responsibilities (e.g., paying rent, purchasing a vehicle, purchasing food, paying bills), and educational/work responsibilities (e.g., successfully completing apprenticeship, performing successfully at work).

Lytle and colleagues (2002) argue that the transition to adolescence, where young people experience an increased need for autonomy and a desire to express themselves, influences young people’s food choices. Furthermore, youth experience peer pressure which significantly influences their food choices (Lytle et al. 2002). In comparison to younger children, teens might also be exposed to more unhealthy food choices in their environment (Lytle et al. 2002). Apart from transitional issues there are also a number of collective factors which influences the decisions individuals make about food, which includes familial factors, food supply, and food acquisition (e.g., at home, work, markets, and through fast-food outlets) (Taylor, Evers & McKenna 2005). Recent research conducted with Irish adolescents (Walsh & Nelson 2010) indicates that parents are the biggest influencers in their children’s diets. In particular the frequency of shared dinners had a positive effect on adolescents’ food knowledge (Walsh & Nelson 2010). Other factors influencing
adolescents’ diets included their nutritional knowledge, friends (with whom high-fat fast foods were often consumed), government health campaigns and cooking programs on television (Walsh & Nelson 2010). However, this study found that celebrity endorsements of food products had the least influence on adolescents’ diets (Walsh & Nelson 2010). Other researchers note that the media, in particular television, promotes differential food marketing to youth (Lytle et al. 2002). A study by Wiecha and colleagues highlights the important role of television in shaping young people’s intake of increased calorie-rich, low-nutrient food often advertised on television, and also explicitly links increased television viewing with increased calorie intake (Wiecha et al. 2006). Food labelling and marketing of products also influence the choices that individuals make around food. For example, Jalleh and Donovan (2001) demonstrated that even though two products were identical, the positive framing of product attributes (e.g., 75% fat free) as opposed to negative framing (e.g., 25% fat content) influenced consumers’ choice of purchasing the positively-framed product, as well as their positive perceptions of the product’s taste and quality.

Demographic factors, socio-economic status, as well as ethnicity, social, and cultural variables also influence food choices (Tepper, Choi & Nayga 1997). At the individual level numerous aspects such as hunger and satiety, food preferences, and attitudes and beliefs about food influence decisions around food (Tepper et al. 1997). Gracey and colleagues (1996) identified that 15-year old adolescent boys report the effects of a healthy diet to be ‘an improvement in health’, ‘feeling energetic’, ‘feeling good about myself’, ‘lowering cholesterol’ and ‘improving appearance’. These adolescent boys also identified some barriers to healthy eating, including healthy food not being available at home or in the school canteen, a lack of control over foods available at home, and a lack of nutritional knowledge (e.g., calorie content, sugar/fat content, fibre content) (Gracey et al. 1996). Nutritional knowledge has been indicated as a factor which influences food choice. However, some researchers question whether an increase in nutritional knowledge necessarily eventuates in improved food choices (Tepper et al. 1997), whilst other researchers have found that nutritional knowledge alone is insufficient to motivate healthy eating (Gracey et al. 1996).

Although fewer men than women report that they have ‘dieted’ (Liebman et al. 2001), men’s food choices have been found to be moderated by dietary restraint (defined as “the conscious attempt by an individual to regulate body weight”, Tepper et al. 1997, p.308). In their study of 137 males in a U.S. community sample, Tepper and colleagues (1997) found that dietary restraint was a definite factor influencing food choices, with men high in restraint more likely to consume healthy foods and less likely to consume fast foods, fats and oils, and soft drinks. Others report that men, in general, give preference to taste and convenience, over healthful food choices (Wardle et al. 2004). While unhealthy eating practices established during childhood and adolescence might interfere with optimal growth and development (Taylor, Evers & McKenna 2005), it is of greater concern that these food practices tend to endure into adulthood (Ambrosini et al. 2009). Some researchers believe that this is a contributing factor to the eventual differences in life-expectancy between men and women (Wardle et al. 2004).

**Effects of nutrition on mental health**

Australian research indicates that between 1985 and 1995 there was an increase in total energy consumption (e.g., carbohydrates, sugars, soft drinks, and confectionary) in children and adolescents.
Approximately a quarter of Australian adolescents are overweight or obese, and the last 20 years saw an increase in children and adolescents who have become overweight (which has doubled) or obese (which has tripled) (Booth et al. 2006). During this same period physical exercise has decreased and there has been a marked increase in time spent on sedentary behaviours (e.g., watching TV and using computers) (Booth et al. 2006).

Research has found that mental disorders now account for 49% of the ‘burden of disease’ amongst Australians aged 15 - 24 years (AIHW 2007), and it has risen 5 to 8-fold among youth of developing nations in recent decades (Eckersley 2008). A recent large-scale Australian study of more than 10,000 students found that students’ wellbeing particularly decreased during high school (Bernard, Stephanou & Urbach 2007). Eckersley (2008) comments that youth “appear to be suffering mental health problems at an earlier age than before, experiencing them at higher rates than older age groups, and retaining their increased risk beyond youth into older age” (p.10). A quarter of 16-24 year olds report experiencing a mental disorder (e.g., depression, anxiety, substance use disorders etc.) (ABS 2008). Young men, in particular, are at risk of suicide with 24% of deaths in young Australian men aged 15 -24 years accounted for by suicide (ABS 2010).

Whilst the exact relationship remains undefined and causality cannot be inferred, there is some research to date which links poor nutrition with a decrease in mental health. Vitamins and minerals assist with optimal functioning of neurotransmitters in the brain and O’Sullivan and colleagues (2008) note that “neurotransmitters are directly responsible for aspects such as behaviour, mood and intellectual function” (p. 254). In relation to mental health and brain functioning Jacka and Berk (2007) note that at the neurochemical level oxidative stress can cause neuronal damage, however foods high in antioxidants (e.g., blueberries, grapes, and green tea) can reduce the occurrence of neuronal damage. The mechanism for this relationship is commented on by Jacka and colleagues which in relation to depression notes that it “is influenced by genetic, hormonal, immunological, biochemical, and neurodegenerative factors. Diet modulates each of these factors and, as a results, has a plausible impact on the development and course of this illness” (Jacka et al. 2010, p. 5). Others, such as Smith (1991), have linked the immune system to depression, and the immune system is also thought to be influenced by dietary habits (Jacka & Berk 2007). For example, magnesium deficiency (e.g., low intake of leafy green vegetables, nuts, legumes and whole grains) is associated with C-reactive protein – a marker for low grade inflammation (Jacka & Berk 2007). Dietary habits are thus likely to be important factors in immune status, which these researchers suggest may influence depression over time (Jacka & Berk 2007).

A number of Australian researchers have also recently begun conducting research on diet and its association with symptoms of mental illness. In a large-scale Western Australia study researchers examined 1,631 adolescents (14-year-olds) and found two main food patterns: a ‘Western’ dietary pattern, which consisted of high intakes of take-away foods, soft drinks, confectionary, refined grains and full fat dairy products; and a ‘healthy’ dietary pattern, which consisted of high intakes of whole grains, fruit, vegetables, legumes and fish (Ambrosini et al. 2009). A study by the same research group identifies that higher scores of psychological symptoms relating to internalising (e.g., withdrawal/depression) and externalising behaviour (e.g., delinquency/aggression) were associated with a ‘Western’ dietary pattern, whereas a ‘healthy’ dietary pattern was associated with a decrease in symptoms (Oddy et al. 2009). Another study also showed that a ‘Western’ diet was associated with a higher likelihood of depressive and anxiety disorders in women (Jacka et al. 2010).
Furthermore, it has been identified that a high-quality breakfast, consisting of 3 or more food groups, is associated with better mental health scores in adolescence (O'Sullivan et al. 2008). For example, the researchers report that milk, fortified breakfast cereals and bread are good sources of nutrients (including carbohydrates, calcium, B vitamins, iron and folate) that positively affect brain function (O'Sullivan et al. 2008).

**Gender differences**

As alluded to earlier, differences in life expectancy between men and women continue to be evident today: the average life expectancy for Australian women is 84 years, whilst for men it is 79 years (Department of Health and Ageing [DOHA] 2010c). Health-related beliefs and behaviour significantly moderate these differences particularly in preventable/chronic diseases. The U.S. Preventive Services Task Force (1996) reviewed a large number of studies and estimated that half of all deaths could be prevented by making changes in personal health behaviours, such as diet.

Research confirms that Australian men consume less fruits and vegetables than women (Centre for Public Health 2003). Compared to other groups, men aged 18-44 years also eat a smaller variety of vegetables (Centre for Public Health 2003). Men consume less high fibre foods, less low fat foods and more soft-drinks than women (e.g., Wardle et al. 2004). In this regard, researchers have identified that men face specific barriers to eating foods like fruit and vegetables (Dumbrell & Mathai 2008). This includes cost, time, lack of cooking skills, inconsistent quality, low availability, perishability and a lack of understanding as to recommended serving size (Dumbrell & Mathai, 2008). Furthermore, Dumbrell and Mathai (2008) identified in a sample of men aged 18 - 40 years that fruit and vegetables ranked lowly in Australian men’s culture – this was particularly noticeable in younger men aged 18 – 25 years where they were unconcerned about the health risks of diets low in fruit and vegetables. The researchers (Dumbrell & Mathai 2008) comment that Australian food marketing messages often link masculinity with animal products “or with the ‘hunter’ rather than ‘gatherer’ food traditions” (p. 217), whereas nutrition and cooking are socially constructed as feminine (e.g., far more women than men are cooks and homemakers on television) (Courtenay 2000).

Gender differences in health beliefs and dieting status have been found to moderate food choices (Wardle et al. 2004). Wardle and colleagues (2004) conducted a large-scale study of 19,298 university students from 23 different countries and found that for men health is a less important motivational factor when making food choices, than for women. They comment that it was not that men were not interested in the nutritional and health benefits of food, but that this was a less important quality for men, than it was for women. However, the gender differences in this study were small. This could be explained by Wardle and colleagues’ (2004) sample of university students which were mainly well-educated and from higher socio-economic circumstances – factors which could be limiting the extent of gender differentiation in that sample.

Other researchers comment on the socially prescribed male role, and that there are stereotypical or socially prescribed masculinities which influences men’s health beliefs and behaviours (e.g., Courtenay 2000). For example, Courtenay (2000) comments that:

*A man who enacts gender as socially prescribed would be relatively unconcerned about his health and wellbeing and would place little value on health knowledge. He would see himself*
as stronger, both physically and emotionally, than most women. He would think of himself as independent, not needing to be nurtured by others....He would not be interested in learning about health, nutrition, or cooking, and he would be unconcerned about his weight, diet, or hygiene (p. 11)

Courtenay (2000) argues that rather than gender residing in the person, men and women actively participate to construct these socially-based gendered norms. In turn the health beliefs and behaviours that an individual exhibit could characterize and enact representations of themselves and their gender (Courtenay 2000). In his review of literature Courtenay note that “a growing body of research provides evidence that men who endorse dominant norms of masculinity adopt poorer health behaviours and have greater health risks than their peers who endorse less traditional norms” (p. 3). Thus, in contrast to Wardle and colleagues’ study of university students from high socio-economic backgrounds (2004), it is possible that men from lower socio-economic circumstances, such as blue-collar workers (e.g., construction workers in jobs that are considered “men’s work”, Courtenay 2000, p. 7), might adhere more to masculine stereotypes, which might in turn influence their dietary beliefs and choices. Although less is known about blue-collar workers’ food consumption, research does show that white-collar populations have more favourable food patterns (Engbers et al. 2006).

Whilst dominant stereotypes have a powerful effect, others argue that the perpetuation of singular dominant masculine stereotypes is unhelpful in health promotion settings. For example, Smith (2007) cautions that these days the “masculine transition into adulthood has become more complex and transitional statuses (leaving home, marriage and employment) have become weakened” (p.22). As such, Smith (2007) argues for a greater acceptance of multiple masculinities in different groups of men, in order to target health promotion activities to the most vulnerable and marginalised men in society.

Nutrition education and intervention

One of the theoretical frameworks frequently mentioned in health literature which has relevance to the stages of change that people experience as they make behavioural changes (e.g., to their diet), is that of Prochaska and DiClemente’s (1986) transtheoretical model. According to this framework behavioural change happens when individuals are ready to change, and it occurs in a cyclical process which might involve progress and relapse. The stages distinguished in the model include precontemplation (where behaviour change is not yet considered), contemplation (thinking about change), preparation (planning to change), action (actively changing) and maintenance (sustaining change) (Prochaska & DiClemente 1986).

Gracey and colleagues note that nutrition intervention programs are more likely to be successful if it considers factors which influence food choice, as well as a theoretical framework which incorporates a focus on changes in health-related behaviours, for example Prochaska and DiClemente’s stages of change model (Gracey et al. 1996). More recently, Walsh and Nelson (2010) noted the importance of increasing young men’s competencies in relation to food, and called for educators to consider the variety of factors which influences how young men think about food and the role it plays in their lives. Other researchers have similarly called for ‘innovative approaches’, including the importance
of using participant suggestions in developing nutrition programs and the use of internet-based nutritional information in informing young adults (Cousineau et al. 2004).

Mass media campaigns focused on preventing weight gain have been successful both overseas and in Australia. A 3-year mass media campaign (‘Maak je niet dik!’ literally translated as ‘Don’t get fat’) implemented in the Netherlands resulted in high campaign awareness, more positive attitudes, greater social support and positive intentions to prevent weight gain (Wammes, Oenema & Brug 2007). Similarly the 2009 Western Australian ‘Draw the Line’ campaign, which aimed at maintaining a healthy weight, was effective in achieving high campaign awareness, understanding of campaign messages, and confidence in the target group’s ability to implement and sustain weight-related behaviours (Ivery et al. 2010).

Nutrition education programs are frequently combined with exercise interventions in community health promotion programs. Targeting both physical activity and nutrition can offer a greater number of health promotion opportunities and maximise positive health outcomes for participants (Prochaska & Sallis 2004). Researchers note that exercise and dietary behaviour are influenced by conscious choices (for which increasing health knowledge is useful) and unconscious processes or habits (for which changes in the physical environment is beneficial) (Engbers et al. 2005).

Increasingly, multi-behaviour programs are taking a whole-of-community approach to target obesity (e.g., Victorian-based Health Promoting Communities: Being Active Eating Well initiative - De Silva-Sanigorski et al. 2010). However, some researchers caution that multi-behaviour interventions are often costly to implement and need to be time-efficient to maximise its potential, without overloading participants (Prochaska & Sallis 2004).

Settings approaches (e.g., schools/workplace) have been acknowledged as a targeted means to reach specific populations (Smith 2007). School-based interventions implemented as part of the curriculum have shown success in reducing obesity (particularly among girls), decreasing television viewing and increasing fruit and vegetable consumption (Gortmaker et al. 1999). However, another multi-behaviour intervention which focused on environmental changes as opposed to changes incorporated in the curriculum, have shown limited effectiveness (Sallis et al. 2003). Specifically these environmental changes included increased physical activity in physical education classes, regulated provision of low-fat foods in cafeterias, and health policy interventions such as health promotion newsletters to parents (Sallis et al. 2003). This study (Sallis et al. 2003) showed that making environmental changes improved boys’ physical activity and BMI levels, but not dietary intake (and no changes were found to girls’ physical activity levels or dietary intake). In another study brief school-based interventions (30 minutes targeting physical activity and nutrition) have also shown limited efficacy at improving adolescent boys’ (M = 12 years) physical activity levels, however it had no effect on improving their fruit and vegetable intake (Prochaska & Sallis 2004).

Implementing health promotion changes through the workplace can contribute to healthier lifestyles, reduced absenteeism, and increased productivity (e.g., DOHA 2010b). A large portion of each day is often spent at work, as such it is a convenient site for intervention (i.e., the workers are already there), often there is collegial support (or an opportunity to increase support) and, with the support of employers, space and time to implement health-related messages and make environmental changes. A review of workplace interventions show that they are successful in addressing dietary behaviours (Steyn et al. 2009). Some workplace interventions show changes in
the psychosocial determinants of dietary behaviour (e.g., more collegial support to eat healthy in the workplace) (Engbers 2006). However, others show tangible results. For example, a study of New Zealand blue-collar men in a manufacturing workplace compared an intervention group (nutrition displays in cafeteria and 30-minute monthly workshops) with a control group, and after 6 months demonstrated not only high retention in the workplace program, but also significant changes in fat intake, fruit and vegetable intake and nutritional knowledge (Cook et al. 2001).

Engbers and colleagues (2005) conducted a systematic review of 13 randomised control trials which implemented workplace health promotion programs. Their review found strong evidence that workplace health promotion programs can successfully influence dietary intake. Modifying the environment, including food labelling, displaying promotional posters and brochures, expanding the available healthful food choices, and product placement, all contributed to successful dietary changes (including increased fruit and vegetable intake and reduced fat intake) (Engbers et al. 2005). However, there was inconclusive evidence that environmental changes affected anything but dietary intake (e.g., physical activity levels or health risk indicators) (Engbers et al. 2005).

More recently Steyn and colleagues (2009) systematically reviewed 30 workplace interventions with a nutrition component (Steyn et al. 2009). They found that in the most successful programs there were a number of key factors which contributed to its success, including (p.111):

I. There was a nutrition and physical activity component;
II. Dietitians were involved in nutrition education;
III. Changes occurred in the cafeteria/canteen, which increased the availability of healthy food options and advertised them accordingly;
IV. Tailored feedback on diet (and clinical values) was given to subjects;
V. Employees were involved in planning and managing programs;
VI. The reduced prices (of healthy food items) in vending machines encouraged employees to buy healthier options; and
VII. The ‘stages of change’ theory was most commonly associated with best practice outcomes.

Australian Policies and Practice

Data from the National Health Survey of 2007-2008 indicate that most Australians consider their health to be very good/excellent (56%) or good (29%) (ABS 2009). However, self-reported health is not an accurate, objective or complete measure of health status (Eckersley 2008). Given the increase in chronic diseases and greater awareness of risk factors, the next Australian Health Survey (from April 2011) will therefore focus on preventative factors and health modification strategies (www.abs.gov.au).

One of the key documents in relation to healthy eating is the Australian Government’s Dietary Guidelines for Australians, which includes healthful tips for adults to include a wide and nutritious range of foods in their diet, whilst limiting saturated fats, salt, sugar and alcohol (DOHA & NHMRC 2005). It also encourages physical activity on a daily basis and includes tips on the safe storage of foods.
In February 2006 the Australian Better Health Initiative was announced by the Council of Australian Governments (COAG). One of the campaigns featured in this initiative is the Measure Up campaign, which through national social marketing activities (e.g., television advertisements) aims to raise awareness of healthy lifestyles and reduction of risk factors (http://www.measureup.gov.au).

In Australia, the National Preventative Health Taskforce (NPHT) was established in April 2008 by the Hon Nicola Roxon MP, the Minister for Health and Ageing. The NPHT called for urgent, comprehensive and sustained action to implement a number of reforms relating to preventative health action, and sets itself the challenge of making Australia the healthiest country by 2020 (NPHT 2008). In relation to this literature review’s topic of apprentice nutrition, the NPHT specifically called for targeted approaches to people from low socio-economic backgrounds. The contribution from Australian industry, in particular the food and beverage industry, to provide product labelling, prominent placement of healthful foods, increasing the affordability of healthful foods and developing a more environmentally sustainable food chain, is also called for (NPHT 2008).

As a flow-on from the NHPT, the National Partnership Agreement on Preventive Health was agreed to in November 2008 by the Council of Australian Governments (COAG 2008) to address the prevalence of chronic diseases. This is to be achieved by:

a) laying the foundations for healthy behaviours in the daily lives of Australians through social marketing efforts and the national roll out of programs supporting health lifestyles; and,

b) supporting these programs and the subsequent evolution of policy with the enabling infrastructure for evidence-based policy designs and coordinated implementation.

(COAG 2008, p.3)

Amongst its initiatives, the National Partnership Agreement wants to support healthy living programs in workplaces in States and Territories, which would include focusing on topics such as physical activity and healthy eating (COAG 2008). More recently, the first National Male Health Policy, also encouraged the workplace as a setting for targeted health promotion interventions, awareness raising and health checks (DOHA 2010c). An example of how these programs are implemented is the Victorian Government’s WorkHealth checks across Victorian workplaces, including the construction industry (www.workhealth.vic.gov.au). These 15-minute health checks delivered by endorsed clinical practitioners in the workplace tests key risk factors (e.g., cholesterol, blood pressure, blood sugar) and includes the provision of targeted educational materials to encourage preventative action in specific areas (e.g., increasing fruit and vegetable intake). As part of their initiatives WorkSafe also implement targeted and tailored workplace programs in conjunction with employers. For example, this might target increasing physical activities (e.g., lunch-time walking groups) or dietary changes (e.g., provision of fresh fruit and vegetables by employers).

More recently, the Australian Government announced its Food and Health Dialogue, which together with industry and public health groups aims to address poor diet and promote healthy food choices (DOHA 2010a). A Reformulation Working Group has been established under this initiative to investigate a number of food categories, including bread and breakfast cereals, savoury pies, and
sweet biscuits. To date the Working Group has secured an agreement with industry to reduce salt in bread and breakfast cereals (DOHA 2010a).

**Summary**

Consuming a nutrient-rich diet provides the body and mind with the energy it requires and assists individuals in maintaining optimum health and wellbeing. Self-report surveys indicate that most Australians consider their health to be very good or excellent. However, there has been a rise in lifestyle-related chronic diseases (e.g., Type-2 diabetes, cardiovascular disease) which would appear to question accuracy of these health perspectives. From recent research it is also evident that there is likely link between nutrition and mental health. Jacka and Berk (2007, p. 322) comment that:

*Given the substantial direct and indirect action of various nutritional compounds on gene expression, immune function, the endocrine system, biochemistry and ageing, it is therefore appropriate and important to recognise that diet must be considered as another environmental factor with the potential to influence the course and outcome of many psychiatric illnesses.*

Apart from a rise in chronic diseases – many attributed to overnutrition and being overweight – men consume less healthy food (e.g., less fruit, vegetables, land low fat foods) than women, and are also less proactive about preventing ill-health. In turn, these dietary behaviours would appear to place men and women on different trajectories which contribute to the 5-year difference in life-expectancy.

Most apprentices are young men at the start of their career who face a number of transitional challenges. Maintaining mental fitness and a healthy body contributes to apprentices being able to successfully face these transitional challenges, and helps them to perform physically demanding work roles. Early adulthood is a phase of greater independence where young men are starting to make a range of decisions, including food choices. Research indicates that becoming overweight in adolescence makes it much more difficult to obtain a healthy weight in adulthood. The literature also indicates that by the age of 15 years food preferences are becoming habitual. Apart from food preferences there are also a number of aspects such as personal factors (e.g., taste, health beliefs), environmental factors (e.g., availability of food) and social factors (e.g., peers/family) which affects people’s food choices. The literature indicates that men, in particular, face perceived obstacles to consuming particular foods such as fruit and vegetables, including a lack of nutritional knowledge and a lack of cooking skills. Fruit and vegetables, for example, also rate lowly in Australian men’s culture, and the literature indicates that men who prescribe to stereotypical masculinities (e.g., blue-collar men) would be relatively unconcerned with their health, nutrition and dietary practices.

Studies have shown that settings-based nutrition intervention approaches (e.g., workplace interventions) can be successful in achieving their aims if they consider factors which influence food choice, including nutritional knowledge and environmental changes. A systematic review of 30 workplace interventions also found that multi-pronged approaches which incorporate physical activity components, changes to the environment (e.g., greater availability of healthy food options) and involvement of participants in planning and managing programs, are more successful. Although
little is known about implementing nutrition intervention approaches with apprentices, it is likely that the transitional issues and blue-collar context that apprentices face might also colour the manner in which they engage with food and health messages in the workplace/Training and Further Education Institutions (TAFEs)/Group Training Organisations (GTOs).

Through a range of initiatives and dedicated funds the Australian Government has taken a proactive stance in aiming to reduce the incidence of chronic diseases. Through social marketing campaigns the populace is encouraged to consume healthy diets and take part in physical activities. Reforms are also occurring at the industry level where the Government is engaging with the food and beverage industry to label, promote and make healthful foods more affordable. The importance of promoting health is indicated in a number of Government documents and policies, including the new National Male Health Policy, which specifically targets the workplace as an ideal setting for health interventions.

Clearly, healthy lifestyles, of which dietary behaviour is an important aspect, has become a focus for the Australian Government as it sets out to reduce the burden of chronic disease on Australians. To date the link between nutrition and mental health in terms of Government policies has been less overt. From the literature reviewed, it is clear that the workplace provides an ideal setting to implement nutritional programs. Young working men are key contributors to the Australian economy and their sustained health and wellbeing makes economic, social and moral sense. However, not much is known about the dietary beliefs and practices of young men. To this end it is difficult to implement targeted health-focused nutrition programs. It is hoped that future research projects can address this paucity in research, with a particular focus on establishing:

- To which degree do young construction workers adhere to stereotypical masculinities and does this influence their dietary beliefs and practices?
- What are young construction workers’ beliefs around what constitutes a healthy diet?
- In young construction workers’ opinion what can be done to address issues around dietary behaviour?
- Are there collective barriers which young men face in sourcing nutritious food, and do these barriers vary across districts (e.g., metropolitan and rural)?
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**About the Author:**
Dr. Karin du Plessis, *Ph.D., MAPS*, is a full time researcher in the building and construction industry. She has a background in teaching psychology and education, and researching relationships, lifespan and men's issues. She holds a Ph.D. in psychology from Massey University. Karin is a member of APS (Australian Psychological Society) and AVETRA (Australian Vocation Education and Training Research Association), and is an honorary fellow at Melbourne University.

**Address for correspondence:**
Karin du Plessis, Research Coordinator, Incolink, 1 Pelham Street, Carlton, VIC, Australia, 3053, T: +613 9668 3005, E: karind@incolink.org.au