

Clients expect nutrition care to be provided by personal trainers in Australia

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1 **Abstract**

2 **Aim:** To describe client expectations of nutrition care provided by personal trainers in
3 Australia, and to explore factors that may influence expectations of nutrition care by
4 personal trainers.

5 **Methods:** A cross-sectional survey identified expectations for nutrition care provided by
6 personal trainers. Likert-scales explored expected nutrition care and nutrition knowledge
7 of personal trainers, and experiences of those who had received nutrition care from a
8 personal trainer. Expectations evaluated using descriptive statistics. Associations
9 between expectations and participant demographic characteristics were explored with
10 Pearson Chi-squares.

11 **Results:** Participants included 627 (77% female) Australian residents. Participants
12 frequently reported that personal trainers should be knowledgeable about and should
13 discuss general healthy eating (92% and 88%), muscle gain (92% and 81%) and weight
14 loss (89% and 76%). Half of participants expected personal trainers to discuss and be
15 knowledgeable about nutrition for chronic disease (55% and 47%). Of the 334
16 participants who had previously engaged a personal trainer, 98% reported receiving
17 nutrition care. Half of these participants (n=167) reported they were satisfied with the
18 nutrition care they received and 40% reported positive dietary changes as a result of
19 nutrition care from their personal trainer. Tertiary education or perceived healthfulness
20 of diet lowered expectations of nutrition care from personal trainers.

21 **Conclusions:** Personal trainers in Australia are expected to provide at least some nutrition
22 care, occasionally beyond their recommended scope of practice. Personal trainers can
23 successfully modify dietary behaviours of clients. Still, strategies to manage client

- 24 expectations are needed to assist personal trainers in providing safe and effective nutrition
- 25 care.
- 26 **Keywords:** nutrition knowledge, nutrition skills, fitness professional, patient care.

27 **Introduction**

28 Diet and physical activity are pervasive modifiable risk factors for chronic disease.¹ The
29 majority of adults in the USA, UK and Australia do not meet the recommended intake of
30 fruits and vegetables and less than half achieve recommended levels of physical activity.²⁻

31 ⁸ To help prevent and manage chronic disease, WHO recommends upskilling of health
32 professionals and coordination between industries to facilitate improvements in dietary
33 behaviours and physical activity of individuals and communities.⁹⁻¹⁰

34 Fitness professionals, such as personal trainers, are a large workforce engaged in the
35 promotion of physical activity and health.¹¹⁻¹² Personal trainers are ideally placed to act
36 as advocates for healthy eating because individuals who employ a personal trainer are
37 likely to seek advice concerning other health behaviours such as diet.¹³⁻¹⁵ International
38 standards encourage personal trainers to provide nutrition care in line with national
39 dietary guidelines.¹⁶ Similarly in Australia, the regulatory body for fitness professionals,
40 Fitness Australia, has developed a scope of practice that endorses personal trainers to
41 provide nutrition care in line with national dietary guidelines.¹⁷ Such nutrition care may
42 play an important role in the prevention of chronic diseases.

43 A major risk for the fitness industry is the provision of nutrition care beyond the scope of
44 practice due to the potential for unsuitable advice which may lead to poor health outcomes
45 for clients.¹⁸ Personal trainers have been reported to provide nutrition care to clients
46 beyond their scope of practice including nutrition advice for managing chronic conditions
47 (e.g. cardiovascular disease and/or diabetes), nutritional deficiencies, food intolerances
48 and allergies.¹⁹ Personal trainers are often advertised as able to provide nutrition care
49 beyond their scope of practice.²⁰ Moreover, personal trainers have reported feeling

50 confident and prepared to provide such specialized nutrition care to their clients despite
51 having limited education in nutrition, and similar nutrition knowledge to the general
52 Australian population .^{21,22} However, it remains unclear if the provision of nutrition care
53 beyond the scope of practice is initiated by the personal trainer or if it arises as a
54 consequence of client expectations for specific dietary advice. The expectations on
55 personal trainers from the perspective of clients, and potential clients, regarding nutrition
56 have not been investigated.

57 Exploring expectations regarding nutrition care provided by personal trainers is important
58 to help clarify the level of nutrition care that clients would like. This information can
59 inform personal trainer education and occupational standards and may help to direct
60 public health messages about seeking nutrition information. Therefore, this study aims to
61 describe expectations of nutrition care provided by personal trainers in Australia, among
62 individuals with an interest in fitness. A secondary aim included exploring factors that
63 may influence expectations such as previous engagement of a personal trainer, previous
64 experiences with a personal trainer, level of education, perceived healthfulness, and
65 gender.

66 **Methods**

67 A cross-sectional online survey was conducted to explore the expectations of Australian
68 residents with an interest in health and fitness, regarding personal trainers providing
69 nutrition care. The study was approved by the (*blinded*) Human Research Ethics
70 Committee (Ref: 2016/045). STROBE reporting guidelines for cross-sectional studies
71 where followed where appropriate.

72 *Participants*

73 Potential participants included Australian residents ≥ 16 years of age, with an interest in
74 fitness, regardless of previous engagement of a personal trainer. Participants were
75 recruited through purposive and snowball sampling from March to April, 2016. Purposive
76 sampling involved emailing study details to personal trainers within the professional
77 networks of the research team and requesting they share it their clients as well as
78 surveying members of two large local gyms. Snowball sampling involved advertising the
79 survey via the research teams personal and professional Facebook and Twitter accounts,
80 inviting individuals who were interested in fitness and/or regularly engaged in exercise.
81 The survey details were sent via mass email to all students and staff of a large University
82 in March 2016, inviting individuals who were interested in fitness or regularly engaged
83 in exercise.

84 *Instrument*

85 The survey was developed and administered using *LimeSurveyTM* version 1.9x. A survey
86 was formulated after a review of literature on nutrition care, nutrition services and
87 nutrition skills provided by personal trainers. Questions were tailored based on participant

88 answers to ensure relevant questions were asked. Table 1 outlines the survey tool
89 including survey sections, area of enquiry, and response format.

90 >Insert table 1 here<

91 The survey was piloted with seven individuals from a local fitness facility (four had
92 engaged a personal trainer) for face and content validity, using a ‘think-out-loud’
93 approach to confirm interpretation of questions and to ensure appropriate survey logic
94 (i.e. participants who had never engaged a personal trainer were not asked if their personal
95 trainer had provided nutrition advice). Prior to data collection, minor wording changes
96 were made in accordance with feedback to enhance clarity. The finalized online survey
97 contained 35 items, required approximately 10 minutes to complete, and was available in
98 English.

99 *Data analysis*

100 Likert-scales regarding topics that personal trainers should discuss were collapsed to
101 agree, uncertain, and disagree. Likert-scales for knowledge of nutrition topics were
102 collapsed to Little or no knowledge, unsure, and knowledgeable. Frequency distributions
103 for all collapsed Likert-scales were calculated. Mean and standard deviation were
104 calculated for continuous numerical items (age, BMI (calculated from height and
105 weight)). Demographic characteristics of survey participants was compared to census
106 data²² using chi-squared goodness of fit analysis. Pearson chi-squared tests were
107 conducted to detect differences in responses based on gender (Male or Female), age (<30
108 years or >30years), education level (current or previous attendance at university vs no
109 attendance at university), self-reported healthfulness of diet (unhealthy & neither healthy
110 or unhealthy diet vs healthy diet) and previous engagement of a personal trainer (currently
111 or previously engaged a personal trainer (client) vs never engaged a personal trainer (non-

112 client)). Pearson chi-squared tests were also used to explore the relationship between
113 participants' expectations for nutrition care and reported experience of receiving nutrition
114 care from a personal trainer (for clients only). Statistical significance was set at $p < 0.01$ to
115 reduce the likelihood of false positive errors. Bonferroni corrections were applied to all
116 significant Pearson Chi Square results to pinpoint significant variations between
117 participant groups. Data analysis was conducted using SPSS statistics version 22.²⁴

118 **Results**

119 In total, 756 individuals opened the online survey. There were 129 (17%) incomplete
120 responses, resulting in 627 usable responses. Table 2 outlines the demographic
121 characteristics of participants, self-reported health and previous use of personal training
122 services. The mean age (\pm SD) of participants was 29.8 ± 11.2 years (range 16-74 years)
123 with $n=483$ (77%) female. Participants were categorized into clients ($n=334$, 53%) and
124 non-clients ($n=293$, 47%). The majority of participants ($n=365$, 58%) reported to have a
125 healthy weight (BMI 18.5-24.9kg/m²) and most ($n=386$, 62%) perceived their diet as
126 'healthy'.

127 >Insert Table 2<

128 Relative to national demographic data (ABS, 2016), there was an over representation of
129 females ($\chi^2= 183.287.125$; $p<0.001$), university educated individuals ($\chi^2=550.79$;
130 $p<0.001$) and those within the healthy weight range ($\chi^2=187.21$; $p<0.001$) in the survey
131 sample.

132 Table 3 shows the total number of participants that expected personal trainers to discuss
133 and to be knowledgeable about specific nutrition topics. The majority of participants
134 ($n=497$, 79%) indicated that personal trainers should discuss nutrition. However,
135 participants reported variable views regarding which nutrition topics personal trainers
136 should discuss. Most agreed that personal trainers should discuss, and be knowledgeable
137 about, general healthy eating ($n=554$, 88%; $n=577$; 92% respectively), nutrition for
138 muscle building ($n=507$, 80.9%; $n=577$; 92% respectively) and nutrition for weight loss
139 ($n=479$, 76%; $n= 559$; 89% respectively). Fewer participants reported that personal
140 trainers should discuss nutrition in relation to management of chronic conditions ($n=292$;

141 47%), deficiencies/ disordered eating (n=228; 36%) and food intolerances and allergies
142 (n=215; 34%). However, many participants expected personal trainers to be
143 knowledgeable about nutrition for management of chronic conditions (n=344; 55%),
144 deficiencies/disordered eating (n=302; 48%) and food intolerances and allergies (n=273;
145 44%).

146 >Insert Table 3<

147 No differences were found between participants who had, or had not, engaged a personal
148 trainer with regards to expectations of nutrition topics to be discussed ($p>0.01$). However,
149 compared to those who had not previously engaged a personal trainer, those who had
150 engaged a personal trainer more frequently reported that personal trainers should be
151 knowledgeable on the management of chronic conditions (including cholesterol, diabetes,
152 and hypertension) (48% vs 60% $\chi^2=9.12$, $p=0.001$), and of food intolerances and allergies
153 (36% vs 50% $\chi^2=13.305$, $p<0.0001$).

154 Significant associations were found between some demographic variables and
155 participants' expectations. Compared to participants who had not attended university,
156 those who had attended university less frequently agreed that personal trainers should
157 provide: nutrition management for chronic disease (42% vs 64%; $\chi^2=15.32$, $p<0.001$);
158 advice for food intolerances or allergies (30% vs 53%; $\chi^2=18.92$; $p<0.001$); and nutrition
159 advice for sports performance (32% vs 53% $\chi^2=17.64$; $p<0.001$). Compared to
160 participants who had not attended university, those who had attended university less
161 frequently agreed that personal trainers should be knowledgeable on: nutritional
162 management of chronic diseases (50% vs 73%; $\chi^2=20.52$, $p<0.001$); food intolerances or
163 allergies (38% vs 62%; $\chi^2=22.75$, $p<0.001$); and deficiencies/disordered eating (43% vs
164 67%; $\chi^2=21.06$, $p<0.001$).

165 Participants who reported that their diet was ‘healthy’ less frequently reported that they
166 expected nutrition care from personal trainers compared to participants who reported their
167 diet to be neutral or unhealthy, specifically with regard to: management of chronic disease
168 (52% vs 70%; $\chi^2=11.18$, $p=0.001$); deficiencies/disordered eating (44% vs 59%;
169 $\chi^2=10.46$, $p=0.001$). The associations between demographic factors and expectations
170 were most often significant where >20% of participants reported that they were uncertain
171 if personal trainers should discuss the nutrition topic. Nutrition topics participants were
172 uncertain a personal trainer should provide included: deficiencies/disordered eating
173 (n=169; 27% uncertain); food intolerances or allergies (n=169; 27% uncertain); and
174 management of chronic disease (n=140; 22% uncertain).

175 Most participants expected personal trainers to be skilled or experts in collecting nutrition
176 information (n=480, 76%), creating personalized meal plans (n=426, 68%) and providing
177 nutrition counselling (n=445, 71%). Half of participants reported that nutrition care
178 should only be provided when the client requests it (n=350; 56%). The majority of
179 participants expected a personal trainer to spend up to 15 minutes discussing nutrition
180 when providing nutrition care (n=483; 77%).

181 Of the 334 participants who had previously engaged a personal trainer, almost all reported
182 receiving nutrition care (n=328, 98%). The most common nutrition topics discussed with
183 a personal trainer were: general healthy eating (n=253, 76%); weight loss (n=222, 69%);
184 and muscle building (n=212, 64%). For most nutrition topics, a lower proportion of
185 participants who engaged a personal trainer reported receiving nutrition care than those
186 who expected nutrition care. There was a significant difference between expectations and
187 receipt of nutrition care for: general healthy eating (94% vs 76%; $\chi^2=7.171$, $p=0.007$);
188 weight loss (72% vs 67%; $\chi^2=7.593$, $p=0.006$); performance supplements (77% vs 54%;

189 $\chi^2=7.051$, $p\leq 0.001$), management of chronic disease (56% vs 13%; $\chi^2=27.051$, $p\leq 0.001$);
190 and deficiencies/disordered eating (70% vs 13%; $\chi^2=27.051$, $p\leq 0.001$).

191 When nutrition care was provided, half of the participants indicated that they were
192 satisfied with the service that was delivered ($n=167$; 50%) and reported the nutrition care
193 to be useful ($n=190$; 57%). However, fewer indicated that the nutrition care had improved
194 their dietary behaviours ($n=132$; 40%). Of the 120 participants who had engaged a
195 personal trainer and rated their diet as unhealthy or neutral, one third indicated that their
196 dietary behaviours improved based on the nutrition care received from their personal
197 trainer ($n=40$; 33%).

198 **Discussion**

199 This study described expectations of nutrition care from personal trainers in Australia and
200 explored factors that influence nutrition expectations. The results suggest that generally,
201 personal trainers are expected to provide nutrition care and to be knowledgeable on a
202 range of nutrition topics. Furthermore, participants expected personal trainers to provide
203 nutrition care, some of which extends beyond the scope of practice and formal education
204 of fitness professionals. Strategies to manage expectations of nutrition care from personal
205 trainers may be required to assist personal trainers to provide safe and effective nutrition
206 care.

207 Participants expected personal trainers to provide nutrition care on many topics, some of
208 which extended beyond the scope of practice for personal trainers. Most concerning was
209 that half the participants expected personal trainers to provide nutrition care for complex
210 topics such as the treatment and management of chronic diseases and deficiencies or
211 disordered eating. Idealistic expectations may be due to unfamiliarity with the complexity
212 of chronic disease management, coupled with the perception that personal trainers
213 provide a template to achieve health through physical activity and diet.^{25,26} Previous
214 researchers have suggested that personal trainers are perceived as the ‘gatekeepers’ to
215 health and fitness with their position (and possibly physique) providing a sense of
216 authority because they have successfully controlled modifiable factors associated with
217 health (exercise and diet).²⁶ Given the amount of time personal trainers and clients spend
218 together to achieve health related goals, the nutrition care that is provided may be
219 opportunistic.^{14,15,27}

220 Engaging a personal trainer did not influence expectations of nutrition care in this study.
221 Personal trainers report they are often asked about nutrition and feel confident to respond
222 to clients.¹⁸ Such interactions may reinforce client expectations that personal trainers are
223 able to provide nutrition care for any topic. While it is promising to note that few clients
224 reported receiving nutrition care that is considered beyond the scope of practice (e.g.
225 nutrition for chronic disease management) many still expected a personal trainer to
226 discuss such nutrition care. This may indicate that personal trainers are aware of their
227 boundaries and avoid providing nutrition care beyond translation of national guidelines.
228 Alternatively, personal trainers may have limited opportunity to provide nutrition care for
229 topics such as chronic disease or food allergies due to lack of session time or lack of
230 clients with chronic conditions. The majority of participants in this study were healthy
231 young adults and the opportunity for personal trainers to provide such nutrition care may
232 be limited in this sample. Still, clients expected a personal trainer to provide nutrition care
233 that they did not receive. As such, it appears that the general perception that personal
234 trainers are panaceas of health information influences the expectations greater than
235 previous experience.

236 Expectations to provide nutrition care beyond translating the national dietary guidelines
237 compromises a personal trainer's ability to work within the industry defined scope of
238 practice. The education personal trainers currently receive is too short to adequately
239 support the knowledge and clinical reasoning required to provide nutrition care for
240 complex health issues or for individual dietary manipulation.^{20,22,28,29} Indeed, several case
241 reports highlight negative client health outcomes that can result from personal trainers
242 providing nutrition care beyond the scope of practice.^{30,31} As such, changing clients'
243 expectations of nutrition care from personal trainers may assist to reduce one component

244 of this risk. Participants who did not expect personal trainers to provide nutrition care on
245 topics that extended beyond the fitness professional scope of practice reported higher
246 levels of education or self-perceived healthfulness which may indicate higher nutrition
247 and health literacy.³² As such, public health messages that aim to improve nutrition and
248 health literacy of the general public, with a focus on information sourcing, may help
249 manage expectations of personal trainers and direct individuals to more appropriate
250 sources of information for their specific nutrition concerns.

251 Given the prevalence of poor dietary behaviours in Australia and internationally,
252 opportunities to promote healthy dietary behaviours should be explored. Nutrition care
253 provided by primary health clinicians, such as general practitioners and allied health
254 workers, is often well received and trusted.³³ However, health professionals often report
255 barriers to providing nutrition care such as perceived lack of patient readiness.^{34,35} In
256 contrast, this study suggests that individuals expect to receive nutrition care from personal
257 trainers and 40% of participants reported positive dietary changes as a result of nutrition
258 care from their personal trainer. While the nature, extent and impact of these changes are
259 unclear; expectations of nutrition care in the personal training context indicate that
260 individuals are likely to be accepting of nutrition care from a personal trainer and
261 therefore personal training is an important context in which nutrition care should be
262 provided. It is important that personal trainers clearly communicate the boundaries of
263 nutrition care they are able provide and enable their clients to access further nutrition care
264 through appropriate referrals to health professionals. Historically, referrals between
265 personal trainers and health professionals, such as dietitians, have been low.³⁶ Increased
266 collaboration between fitness and health professionals is needed to deliver safe and
267 effective nutrition care when individuals are most willing to receive it.

268 This is the first study that has quantitatively explored expectations of clients and potential
269 clients with regard to nutrition care provided by personal trainers. The data was not
270 representative of the general Australian population with over representation of females,
271 educated individuals and those within a healthy weight range.²³ However, fitness industry
272 data shows that the majority of personal trainer clients are female (~70%)³⁷ and use of
273 fitness services by those above the healthy weight range is limited.^{38,39} As such, while not
274 representative of the general population, current participants appear to be aligned with a
275 typical client-base for personal trainers in Australia.¹² An unavoidable response bias may
276 be present in the data, where participants were more interested in nutrition and/or fitness,
277 and therefore reported greater expectations of personal trainers. The final limitation of
278 this paper is that it did not consider awareness of the nutrition components of the fitness
279 professional scope of practice. Further research into awareness and acceptability of the
280 current Fitness Australia scope of practice for registered fitness professionals is needed.
281 This should be conducted among both the personal trainer client base and personal
282 trainers.

283 Overall, these findings indicate that client expectations of personal trainers to provide
284 nutrition care may contribute to the industry identified risk of personal trainers providing
285 nutrition care beyond their scope of practice, which may result in poor health outcomes
286 for clients. Still, personal training is clearly an important context in which healthy dietary
287 behaviours should be promoted.

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417 **Table 1: Summary of survey tool including survey section, area of enquiry and response**
 418 **format.**

Section	Area of Enquiry	Response format
Self-reported	Height and weight	Open number fields.
health and use of personal training services.	Perceived healthfulness of diet	<i>Likert scale</i> : Not at all healthy; Not healthy; Neither healthy nor Unhealthy; Healthy; Very healthy.
	Previous interactions with a personal trainer	<i>Choice</i> : Never engaged a personal trainer (non-client); Currently, or previously engaged a personal trainer (client).
Previous interactions with personal trainers and nutrition care. (Completed only by 'clients')	Receipt of nutrition care [list of nutrition topics] ^a	<i>Choice</i> : Yes, No, Unsure.
	Influence on dietary behaviours and attitude towards food	<i>Likert-scale</i> : Negative impact; Neutral impact; Positive impact; I have not received advice on this topic.
	Satisfaction and usefulness of nutrition care	<i>Likert scale</i> : Unsatisfied; Neutral; Satisfied.
Participant expectations of personal trainers with regards to nutrition care. (completed by all participants)	Agreement that personal trainers are able to provide advice on and should discuss [list of nutrition topics] ^a	<i>Likert scale</i> : Strongly disagree, disagree, neutral agree, strongly agree.
	Rating of knowledge that personal trainers have on [list of nutrition topics] ^a	<i>Likert scale</i> : No knowledge, little knowledge, adequate knowledge, a lot of knowledge.
Demographics.	Location (State)	Drop down menu.
	Age	Open number field.
	Gender	<i>Choice</i> : Male, Female, Rather not say.
	Level of education	

Choice: Some high school, high school certificate, Certificate level (I, II, III, IV or V), Diploma, Bachelor Degree, Postgraduate Degree.

419 ^a Full list of nutrition topics is presented in Table 3.

420 **Table 2: Summary table of demographic characteristics of participants, self-reported body**
 421 **mass index (BMI), healthfulness of diet and use of personal training services (n=627)**

Demographic Characteristics	n (%)
Geographical Location	
QLD	565 (90.1)
Other States and Territories	62 (9.9)
Age	
<30 years	385 (61.4)
>30 years	242 (38.6)
Gender	
Male	144 (23.0)
Female	483 (77.0)
Ethnicity	
Australian	431 (68.7)
Other	196 (31.3)
Level of education currently completing or previously completed:	
Not university level (High school certificate; Certificate I, II, III, or IV; or Diploma)	133 (21.1)
University level (Bachelor or Postgraduate degree)	494 (78.9)
Self-reported Health and Personal Training Characteristics	
Body Mass Index (BMI) (kg/m²)	
<18.5	33 (5.3)
18.5 - 24.9	365 (58.2)
25 – 29.9	145 (23.1)
30+	84 (13.4)
Perceived Healthfulness of Diet	
Healthy	386 (61.6)
Neither Healthy or Unhealthy	111 (17.7)
Not Healthy	130 (20.7)
Personal Training Services	
Previously engaged a personal trainer (client)	334 (53.3)
Never engaged a personal trainer (non-client)	293 (46.7)

422 **Table 3: Number of clients that expected personal trainers to be knowledgeable and discuss**
 423 **nutrition and number of clients who reported receiving nutrition care from personal**
 424 **trainers**

Nutrition Topics	Number of participants who agreed ...		
	Personal trainers are knowledgeable on... n=627 (%)	Personal trainers should discuss... n=627 (%)	My personal trainer has provided advice on ... n=334 (%)
Any nutrition care	N/A	497 (79.2)	328 (98.2)
General healthy eating	577 (92.0)	554 (88.4)	253 (75.7)
Muscle building	577 (92.0)	507 (80.9)	212 (63.5)
Weight loss	559 (89.2)	479 (76.4)	222 (66.7)
Sport specific nutrition	534 (85.2)	464 (74.0)	235 (66.5)
Performance supplements (e.g. protein powders)	488 (77.8)	386 (61.6)	182 (54.4)
Vitamin and mineral requirements	439 (70.0)	392 (62.5)	131 (39.2)
Management of chronic diseases	344 (54.9)	292 (46.6)	44 (13.2)
Deficiencies/ disordered eating	302 (48.2)	228 (36.4)	42 (12.5)
Food intolerances or allergies	273 (43.5)	215 (34.2)	50 (14.9)