

## 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.<sup>1</sup> 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.<sup>2-</sup>

31 <sup>8</sup> 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.<sup>9-10</sup>

34 Fitness professionals, such as personal trainers, are a large workforce engaged in the  
35 promotion of physical activity and health.<sup>11-12</sup> 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.<sup>13-15</sup> International  
38 standards encourage personal trainers to provide nutrition care in line with national  
39 dietary guidelines.<sup>16</sup> 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.<sup>17</sup> 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.<sup>18</sup> 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.<sup>19</sup> Personal trainers are often advertised as able to provide nutrition care  
49 beyond their scope of practice.<sup>20</sup> 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 .<sup>21,22</sup> 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  $\geq 16$  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 *LimeSurvey*<sup>TM</sup> 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 data<sup>22</sup> 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.<sup>24</sup>

## 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  $29.8\pm 11.2$  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/m<sup>2</sup>) 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.<sup>25,26</sup> 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).<sup>26</sup> 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.<sup>14,15,27</sup>

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.<sup>18</sup> 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.<sup>20,22,28,29</sup> 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.<sup>30,31</sup> 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.<sup>32</sup> 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.<sup>33</sup> However, health professionals often report  
255 barriers to providing nutrition care such as perceived lack of patient readiness.<sup>34,35</sup> 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.<sup>36</sup> 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.<sup>23</sup> However, fitness industry  
272 data shows that the majority of personal trainer clients are female (~70%)<sup>37</sup> and use of  
273 fitness services by those above the healthy weight range is limited.<sup>38,39</sup> 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.<sup>12</sup> 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.**

<b>Section</b>	<b>Area of Enquiry</b>	<b>Response format</b>
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] <sup>a</sup>	<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] <sup>a</sup>	<i>Likert scale</i> : Strongly disagree, disagree, neutral agree, strongly agree.
	Rating of knowledge that personal trainers have on [list of nutrition topics] <sup>a</sup>	<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	

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

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419 <sup>a</sup> 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)**

<b>Demographic Characteristics</b>	<b>n (%)</b>
<b>Geographical Location</b>	
QLD	565 (90.1)
Other States and Territories	62 (9.9)
<b>Age</b>	
<30 years	385 (61.4)
>30 years	242 (38.6)
<b>Gender</b>	
Male	144 (23.0)
Female	483 (77.0)
<b>Ethnicity</b>	
Australian	431 (68.7)
Other	196 (31.3)
<b>Level of education currently completing or previously completed:</b>	
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)
<b>Self-reported Health and Personal Training Characteristics</b>	<b>n (%)</b>
<b>Body Mass Index (BMI) (kg/m<sup>2</sup>)</b>	
<18.5	33 (5.3)
18.5 - 24.9	365 (58.2)
25 – 29.9	145 (23.1)
30+	84 (13.4)
<b>Perceived Healthfulness of Diet</b>	
Healthy	386 (61.6)
Neither Healthy or Unhealthy	111 (17.7)
Not Healthy	130 (20.7)
<b>Personal Training Services</b>	
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**

<b>Nutrition Topics</b>	<b>Number of participants who agreed ...</b>		
	<b>Personal trainers are knowledgeable on... n=627 (%)</b>	<b>Personal trainers should discuss... n=627 (%)</b>	<b>My personal trainer has provided advice on ... n=334 (%)</b>
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)