

CORRECTING MISCONCEPTIONS IN THE KNOWLEDGE OF PERSONAL TRAINERS

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Modern improvements in the access to information means the public is more engaged in decisions about health, nutrition, and fitness than ever before. This can increase feelings of control and empowerment in personal health decisions (12). Additionally, in a behavior change setting such as exercise, this can improve adherence and exercise outcomes (13).

But with this access comes the risk of incomplete or inaccurate information from sources that lack the expertise, or inclination, to provide high-quality information. While there are many high-quality sources available online, the public may lack access to academic resources or the skills to interpret them (4). People may rely on a personal trainer to provide information for them, or they may rely on less reliable sources. Oftentimes online sources may be of dubious quality, lacking author credentials or clear sources, and biased in favor of sponsorship arrangements (6,23).

Rather than rigorously fact checking, which requires significant time, effort, and skill, individuals may rely on the consensus of trusted groups and other heuristics (16). Heuristics are cognitive shortcuts that help us spare mental resources. For example, some people may judge the skill of a personal trainer by their appearance, or that of their clients (9). A website may be judged by its appearance, as a book literally is by its cover.

Usually after making a decision, individuals look for reasons to justify their initial decision, which is known as confirmation bias (21). This bias affects more than just how information is received. It will also influence how information is searched for and shared with others. Supporting information is sought out, while people look for reasons to ignore, or discount contrary information. Over time, the error in knowledge can become more resistant to change. This is known as a misconception and can persist even though it is contradicted by current scientific views (1).

So, the public needs help from those with expertise to interpret this information, and there is a place for personal trainers to provide this help. Personal trainers can help them find and interpret high-quality exercise and nutrition information or provide information ourselves.

But do personal trainers have the skills to help people choose good information? How good is the knowledge of personal trainers? If personal trainers possess misconceptions, is it possible to correct these, so they do not get passed on to clients? The aim of this article is to review the research into the knowledge of personal trainers, and their misconceptions. This article will also provide evidence-based strategies to help correct misconceptions.

THE EXERCISE AND NUTRITION KNOWLEDGE OF PERSONAL TRAINERS

Errors in knowledge have been identified in both student and professional personal trainers. Caution is therefore recommended when personal trainers provide advice to their clients where complexity or detail is needed.

Two studies have found that more experience as an exercise professional is not associated with higher levels of exercise knowledge (14,22). Both studies identified that higher levels of formal education lead to better knowledge, though evidence was mixed about whether the certification a personal trainer received made a difference. Therefore, based on the evidence available, a more experienced personal trainer cannot be assumed to be more knowledgeable.

Alarmingly, a recent Australian study examining the nutrition knowledge of personal trainers found their knowledge of general healthy eating guidelines was no better than the public's (15). In fact, the only area of nutrition knowledge where fitness professionals scored higher than the public was the nutritional content of foods. This is despite the fact that nationally endorsed healthy eating guidelines form the basis for the personal trainer's scope of practice, while providing advice based on the nutritional content of food is explicitly excluded (7). This is consistent with other research that has shown that Australian personal trainers regularly exceed their nutrition scope of practice (2).

It is possible that unreasonable levels of confidence are leading personal trainers to exceed their scope of practice. Ekkekakis and colleagues found the gap between knowledge, and confidence (which was significantly greater than knowledge) increased as students progressed through an exercise science degree, and that fitness professionals also significantly overestimated their knowledge (5,22). A qualitative study of trainers in the United Kingdom found that personal training students were confident enough in their own perceived knowledge that they were intending to practice in a different manner to how they were being instructed (3). During their education, at times they just gave the instructors the answers they knew were required to pass, rather than what they believed to be correct. **Alex de Lyon study**

But in the absence of formal training prior to their personal training course, it is unlikely that these students were all more knowledgeable than their instructors, though it seems they thought they were. It can be concluded from this that the opinions of personal training students and personal trainers have about their knowledge and expertise may be at odds with reality.

MISCONCEPTIONS IN PERSONAL TRAINERS AND STUDENTS

The nature of a misconception depends on our pre-existing biases. If we value exercise as a weight loss intervention, that may influence how we perceive other options. For example, it has been identified that third and fourth-year exercise science students focused excessively on exercise and controlling energy intake as weight loss strategies, and were less accepting of other approaches, such as behavioral and bariatric interventions (20). Other research has found that misconceptions of exercise physiology can persist throughout a degree, despite repeated attempts at correction (17).

Many personal trainers do not have degrees, but misconceptions also exist in the knowledge of those that are vocationally qualified. Recent research has identified that both students and practicing personal trainers possessed misconceptions, with no difference between students at the end of their education, and experienced professionals (10).

The misconceptions in this case were simpler than those in previous research, such as “If a part of your body is exercised hard, you will lose body fat from that area. For example, stomach crunches will help to flatten your stomach.” This simplicity is important as it is a topic that may come up with clients and is simple enough for a personal trainer to correct with a reasonable understanding of their course content.

In this example, understanding that metabolism is a central (rather than peripheral) process is required. Therefore, it responds to energy availability and demands, rather than at the site that the exercise is performed. Correcting this misconception can be done with these general principles alone and does not require an awareness of the research showing no effect from spot reduction exercise (11,19).

A notable proportion of personal trainers thought that when trying to increase muscle mass, the more protein you could eat, the better (40%); lactic acid build-up was the primary cause of fatigue (67%); vitamin supplements could improve energy levels and exercise performance (50%); and agreed with the statement “no pain, no gain” (39%). All of these are either a misunderstanding of accurate information or are demonstrably false.

CORRECTING MISCONCEPTIONS

Correcting misconceptions can be difficult, because the incorrect understanding becomes incorporated into a person’s knowledge. When knowledge and profession are part of one’s identity (like it is for many personal trainers), individuals can be resistant to accepting that they are wrong. So simply providing accurate information may not help.

To correct a misconception, it is proposed that one needs to go through a process of “conceptual change,” (18). Someone needs to realize their existing understanding is no longer enough, then be open to seeking out an answer. Not everyone gets to this position.

As discussed earlier, the experience of personal trainers does not appear to improve their knowledge (10,22). This experience also does not reduce the presence of misconceptions. Instead, general education is key. While the research discussed earlier found that higher level exercise qualifications improved knowledge, misconceptions are not the absence of knowledge, they are a distinct cognitive phenomenon. While exercise qualifications have not been shown to significantly reduce misconceptions, general education has been shown to do so (10). In other words, a high level of education in any field may protect the personal trainer, and the public, against misconceptions.

What does this mean? It is possible that the general skills that someone gains during a formal education have a role in preventing misconceptions. Specifically, interpretation and critical analysis skills, that are practiced more at higher levels of study, may help protect us against misconceptions forming. Recent research tested this by showing that personal trainers exposed to an online course in critical thinking skills possessed fewer misconceptions of exercise and nutrition after completing the course, even though those specific misconceptions were not corrected during the course (10). They also expressed less trust in unreliable sources of information and performed better on a simple test of critical thinking ability (8).

It is possible to teach these higher order thinking skills without having to complete higher level qualifications. But these skills are not usually focused on during personal training certifications. Participants in this course learned how to structure arguments and make stronger counterarguments. They learned to identify faulty arguments in order to avoid using them themselves. They learned how their own thinking was affected by bias and were given information about the nature of different levels of qualification, and the strengths and weaknesses of each level. They were also given basic instruction in the scientific method, and how to find reliable sources of information online more easily. There is no known personal training certification or course that devotes significant course content to these skills, but they are skills personal trainers may use daily in their interactions with clients, colleagues, and sources of information. Certifying bodies can do more to assist their members to develop these skills.

Without post-graduate qualifications, it is difficult to accurately analyze and interpret scientific research. And while some personal trainers may choose to rely on these primary sources, there is a role for science communication sources that interpret this information more simply, both for personal trainers and the general population. These sources have the potential to play a major role in countering the spread of exercise and nutrition misconceptions and enhance the status of personal trainers as a choice of advice in these areas.

CONCLUSIONS

Misconceptions are distinct to a lack of knowledge. Put simply, knowledge can be improved through education, whereas a misconception can persist, and may co-exist alongside extra knowledge. Personal trainers need to develop critical thinking skills in addition to knowledge, in order to be flexible, adaptable, and up-to-date professionals throughout our careers.

Critical thinking skills are usually not a focus of vocational training, and many personal trainers do not have the resources to undertake more formal study. But these skills still play an important role for personal trainers. Personal trainers often need to make independent decisions about what professional development to invest in, what sources to use, and what information to trust. Critical thinking skills are crucial when making these choices. **If personal trainers are to be more respected as allied health professionals, these skills should be fostered in both students and professionals.**

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