THE USE OF ARTIFICIAL INTELLIGENCE APPLICATIONS FOR EXERCISE PRESCRIPTION BY PERSONAL TRAINERS—A CALL TO ACTION

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Artificial intelligence (AI) applications are on the rise. One such example is ChatGPT©, which is a web application created by Open.AI that uses a language learning model to generate text responses to prompts in an online chat form (7). While the application has been in development for years, it just recently became available for public use. The health field is beginning to explore uses for AI applications to streamline research, diagnostics, and communication (1,4,8,13). Some personal trainers specifically list obtaining exercise and lifestyle advice related to obesity and metabolic syndrome as a potential benefit of using AI (1,4). It will not be long before personal trainers and their clients begin looking to AI for advice regarding exercise assessment and prescription. As technology advances, it could be beneficial for personal trainers and national certifying agencies such as the National Strength and Conditioning Association (NSCA) to have a conversation about the potential for AI as a tool and develop guidelines to use ChatGPT and other AI applications in an ethical and safe manner. For the purposes of this article, the authors will focus on the ChatGPT application as the example; however, there are other AI applications available that operate similarly.

ASSESSING CHATGPT KNOWLEDGE

It seems reasonable that a conversation about the usefulness of ChatGPT to personal trainers should begin with an assessment of ChatGPT's exercise programming knowledge. Other health fields, such as academia, public health, and fields that work with the diseased population, have already begun to assess the accuracy of ChatGPT for dispensing advice. Regarding cardiovascular disease and cholesterol, 40% of medical professionals rated ChatGPT's answers to be less harmful than using Google™ (13). The authors signed up for an account with Open.AI, to access the ChatGPT application, and asked the following questions about exercise prescription:

QUESTION: *CREATE A 30-MIN EXERCISE PROGRAM FOR A 37-YEAR-OLD FEMALE THAT I CAN DO AT HOME*
We then asked ChatGPT the same questions, but for a male. Table 1 outlines ChatGPT's response to both questions.

ChatGPT provided a low to moderate-intensity exercise bout for the generally healthy adult, which fits within the NSCA's guidelines for a novice exerciser (9). Also, ChatGPT's list includes exercises for both upper body and lower body but is not a balanced program. For example, it does not include an exercise for the upper back (Table 1). Some of the exercises for the males were different than those provided for the females. For example, mountain climbers and burpees incorporate more muscle groups and apply a greater challenge to stability than glute bridges and bicycle crunches. ChatGPT did not provide a reason for the differences between the male and female exercise choices.

Additionally, it is known that female training has the best results when it coincides with the menstrual cycle, and ChatGPT did not ask any questions regarding the menstrual cycle phase (2). Hormone variation through each phase of the menstrual cycle considerably effects physiological responses, which contribute to exercise capacity and adaptation in females (11). During the low hormone phase (follicular phase) it is recommended to do more heavy lifting, high-intensity interval trianing (HITT), and sprint interval training (SIT) (10). As hormones start to rise during the high hormone phase (luteal phase), it is recommended to decrease the volume, intensity, and heavy weight to focus more on bodyweight exercises, form, and mobility due to the catabolic effects on muscle and the downturn in anabolic and growth capacity in muscle from high levels of estrogen (10). Since ChatGPT did not ask about the female exerciser's menstrual cycle, the exercise advice will likely be less effective.

TABLE 1. EXAMPLE OF AN AI-GENERATED EXERCISE PROGRAM FOR A HEALTHY FEMALE AND MALE USING CHATGPT (RED FONT IS USED TO HIGHLIGHT DIFFERENCES BETWEEN SEXES)

FEMALES		MALES	
Squats	10 repetitions	Squats	10 repetitions
Lunges	10 repetitions each side	Lunges	10 repetitions each side
Push-Ups	10 repetitions	Push-Ups	10 repetitions
Bicycle Crunches	10 repetitions each side	Mountain Climbers	20 repetitions per side
Plank	30 s	Plank	30 s
Jumping Jacks	30 s	Jumping Jacks	30 s
Triceps Dips	10 repetitions	Triceps Dips	10 repetitions
Glute Bridges	10 repetitions	Burpees	10 repetitions

It is accepted practice for personal trainers to ask for health and exercise background information before designing exercise programs (9). However, ChatGPT did not ask for basic health information or goals for the client before dispensing exercise advice and did not suggest that the authors consult with a medical physician before beginning an exercise program. To determine whether ChatGPT recognized the impact of disease on exercise prescription, the authors asked the software to develop a program for a person with a chronic disease.

QUESTION: *CREATE A 30-MIN EXERCISE PROGRAM FOR A 45-YEAR-OLD MALE THAT HAS TYPE II DIABETES AND IS OBESE* This time, ChatGPT produced a liability statement:

"As an AI language model, I cannot provide personalized medical advice or design specific exercise programs without a full medical history and consultation with a qualified healthcare provider."

ChatGPT then provided some general recommendations, which included testing blood sugar before, during, and after exercise, but did not specify the recommended levels or how blood sugar affects exercise tolerance. ChatGPT also recommended low-impact activities such as swimming or cycling.

CHATGPT POTENTIAL
Based on our initial investigation, it seems ChatGPT may be able to provide basic exercise program advice for healthy adults that may or may not meet NSCA standards for exercise prescription. It may be more useful as a tool for idea generation than creating an exercise program. Personal trainers could generate exercise templates that could then be adapted to the unique needs of the client or to add variety to existing exercise programs. The personal trainer should be knowledgeable in assessing the quality of the AI's advice to determine if it meets the industry guidelines of the certifying agency before implementing advice from the tool. However, consider that the process of asking ChatGPT for ideas and then quality checking those ideas may be more time consuming than simply creating the exercise program oneself.

Alternative uses for ChatGPT in personal training may include lead generation and marketing communication with potential clients (3). Personal trainers can use ChatGPT to generate attention-grabbing subject lines for marketing emails or generate ideas for social media posts. ChatGPT may also be able to help personal trainers personalize emails based on client interests and needs. However, the personal trainer should exercise quality assurance practices to ensure that ChatGPT-generated marketing content meets industry standards for etiquette and sensitivity.

CHATGPT RISKS
ChatGPT lacks knowledge in the field to generate appropriate recommendations. In just a few questions, the authors were able to establish that ChatGPT is not able to develop a balanced program, does not properly differentiate between training advice for males and females, and is not trained to request health information or exercise background information, a prerequisite to create safe exercise programs.

Open.AI openly admits that ChatGPT has many limitations, including that it can write "plausible sounding, but incorrect answers" and will still respond to inappropriate and at times harmful requests despite its training (7). For example, ChatGPT was asked to complete a short answer exam on exercise addiction (12). ChatGPT incorrectly answered 45% of the questions (12). In some cases, ChatGPT generated responses that looked convincing yet described theories and models that do not exist. This example indicates a limited knowledge of our field. Psychological aspects of exercise are important to personal training (9). If a personal trainer asked ChatGPT for help advising clients related to psychological aspects, such as barriers to exercise, motivational techniques, or proper goal setting, this program might give inappropriate information on how to help the client.

LEGAL AND ETHICAL CONCERNS
Researchers suggested that ethical matters including the risk of bias and transparency issues appear as recurring major concerns in healthcare practice (8). These concerns could also overlap into the health and fitness space. Furthermore, the generation of inaccurate content can have severe negative consequences in healthcare and fitness; therefore, this valid concern should be cautiously considered in these practices (8). Programs generated by ChatGPT for novice exercisers or persons with chronic disease and disability have the most potential for harm. Special considerations should be made for mode of exercise, rest, and intensity when working with these populations, and ChatGPT lacks the expertise to make these accommodations. Blind use of a ChatGPT-generated exercise programs could lead to a liability claim for the personal trainer.

Medical professionals have warned of the probability of violating Health Insurance Portability and Accountability Act (HIPAA) by using ChatGPT to generate diagnostic or treatment advice (5,6). This same warning may apply to the personal trainer. If personal trainers were to use AI for exercise prescription, the privacy of current customers could be brought into question. The personal trainer may violate HIPAA if they share health screening information, such as blood pressure, age, and disease status with ChatGPT in order to generate an effective exercise program, because this private health information is now saved on Open.AI's servers and is potentially accessible by any other user of ChatGPT (5,6). Considering both legal and ethical concerns, ChatGPT has the potential to increase liability for personal trainers.

TAKEAWAY
ChatGPT could be a potential tool to assist personal trainers. However, due to the findings presented, personal trainers should use caution when utilizing ChatGPT, recognizing its limitations. ChatGPT is not a replacement for the personal trainer's knowledge, skills, and abilities. ChatGPT may not be an appropriate tool for unhealthy or untrained persons, and may not be able to assist with overcoming psychological barriers. Any responses from ChatGPT should be analyzed for relevance and accuracy before implementation. Personal trainers should be transparent about their use of ChatGPT to their clients and avoid using ChatGPT in a way that violates their client's privacy.

National certifying agencies, such as the NSCA, should develop policies to guide the use of ChatGPT by the personal trainer and provide continuing educational resources to personal trainers about the use of ChatGPT within a legal and ethical framework. The certifying agency should determine whether ChatGPT guidance should be included on certifying exams by including best practices guidelines. This in turn will best prepare the personal trainer to use AI as a tool in this profession. In addition, it may be beneficial for national certifying agencies to partner with Open.AI and similar applications to reduce adverse outcomes by training ChatGPT to administer health screening tools such as the physical activity readiness questionnaire (PAR-Q) for everyone and make recommendations for medical clearance before dispensing exercise advice (14).

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