

Benefits of Exercise on Mental Health

Informational Workbook



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Dear Reader,

My name is Courtney Conley. I am a 2020 graduate from the University of New Hampshire with a Bachelor of Science in Kinesiology focused in Exercise Science, and a minor in Psychology. I will be an intern at Ellington Youth Services for the summer of 2020, assisting in incorporating fitness into various programs.

Ellington Youth Services is dedicated to help individuals live healthy lives both physically and mentally. Exercise is known as one of the best ways to take care of your body. Current research has proven that exercise is effective in maintaining a healthy mind as well. Through this program we hope to educate individuals on all the amazing mental health benefits that accompany exercise.

My intention in creating this workbook is to present the information about how exercise has so many great benefits, including achieving and maintaining good mental health. Exercise alone can improve your mood, boost your immune system, and lower your future risk of illness. It may seem too good to be true, but thousands of studies prove that exercise can help you feel better overall and live longer.

In this workbook, you will find an overview of the benefits of exercise, and specifically how exercise can assist in combating mental health disorders such as depression and anxiety. It will also provide you with the tools to ensure that you can utilize an effective exercise routine specifically for YOU.

The information in this workbook is not meant to replace traditional counseling or therapy, but is a way to enhance your current approach in strengthening your mental health. I hope that after reading and working through this booklet, you feel better equipped to take action and make changes to enhance your physical and mental wellbeing.

Courtney Conley

ADRENALINE, CORTISOL, & NOREPINEPHRINE

These are all examples of stress hormones that increase in times of stress, such as during a fearful event or exercise. The Fight or Flight response is a direct result of stress hormones. Stress hormones affect your body by increasing heart rate, blood pressure, and feeling of anxiety. People with anxiety and depression have higher resting levels of stress hormones.

DOPAMINE

This chemical is naturally produced in your brain and acts as a messenger between brain cells. It is essential for motivation, pleasure, happiness, and satisfaction. High levels of dopamine can cause feelings of anxiety, increase difficulty to sleep, and difficulty to focus. When dopamine levels are low, it can cause depressive episodes and lead to a decrease in motivation, difficulty concentrating, feelings of hopelessness and a loss of interest.

How Chemicals in Your Brain Affect Your Mental Health

OXYTOCIN

Oxytocin is often called the 'love hormone.' It is a naturally produced hormone that is important for social bonding, building trust, and having empathy towards others. Low levels of oxytocin are known to cause social dysfunction, anxiety, and depression.

SEROTONIN

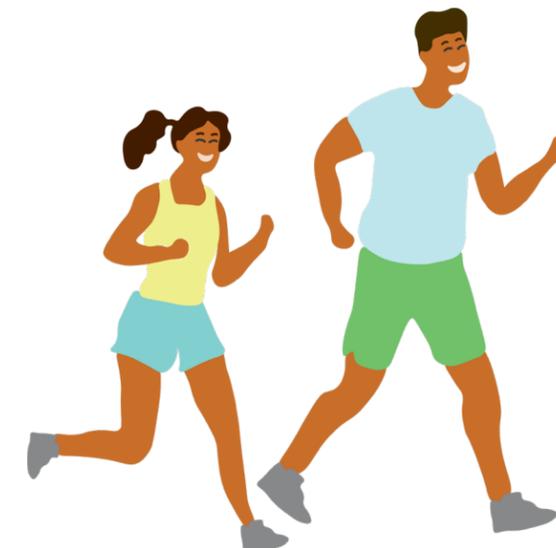
Serotonin is a naturally produced chemical found in the brain that is highly responsible for mood regulation, sleep, memory, and overall well being. Low levels of serotonin can lead to depressive episodes, low energy, negative thoughts, and irritability.

General Benefits of Exercise

Exercise will...

- initiate the release of hormones that promote the growth and health of blood vessels and brain cells.
- make your muscles and bones stronger-making activities of daily living easier, more enjoyable, and more efficient.
- assist in achieving and maintaining a healthy weight.
- increase daily energy levels.
- improve skin health.
- reduce future risk of disease.
- improve memory; exercise stimulates chemicals in your brain to improve memory retention and learning ability, ultimately improving academic performance.
- enhance healthy growth and development.
- improve fitness levels and sport performance.
- prevent sport-related injuries.
- boost your immune function.
- decrease full-body pain, tightness, and tension.

How do you feel after you exercise or do an activity that gets your heart pumping?



Let's Learn About You

Explore what your hobbies and interests are...

What do you love to do in your free time?

List your top 5 favorite hobbies and interests.

- 1.
- 2.
- 3.
- 4.
- 5.

Explore your experience and history with exercise...

Do you participate, or wish to participate, in any sports?

Do you enjoy watching any sports on TV? Are there any you ever wanted to try playing?

What do you do to be active in your daily life?

Do you think exercise is important, if so why?

Is there anything you want to improve on—mentally and/or physically?

How Exercise Affects Your Mental Health



Improves Self-Efficacy
Exercise will increase your physical fitness, making everyday tasks feel easier to accomplish and giving you an increased sense of achievement.



Helps Create Positive Relationships
Finding friends or family with common interests or goals can improve your relationships and make exercise more fun. Playing team sports is a fun way to find a social balance in exercise. Also, exercise increases oxytocin levels in your brain which is a hormone that influences social bonding and trust.



Improves Self-Esteem and Confidence
Exercising can boost your self-image of your physique and abilities. Exercising regularly and making improvements can also benefit your personal feelings of self-worth.



Improves Mood
On a basic level, exercise is a distraction from any stressful thoughts that can consume your brain. Exercise is also proven to release chemicals in your brain that can make you feel happier.



Stress Management
Exercise can decrease stress levels by reducing the response of stress hormones in your brain, like adrenaline and cortisol. This will alleviate symptoms of anxiety daily.



Increases Cognitive Control
Exercising allows your brain to be able to focus better and increase productivity.



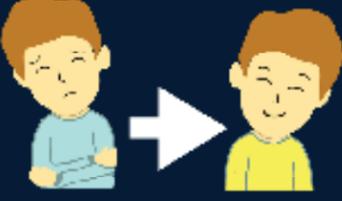
Important for Long-Term Brain and Heart Health
While you are exercising you take in more oxygen and get your heart pumping faster. Increasing blood and oxygen levels sent to your brain will allow your brain to grow and thrive. The harder your heart is pumping, the stronger and healthier it is getting!



Balances Chemicals in Your Brain and Body Long-Term
Regular exercise has been proven to regulate many different chemicals in your brain, which can make you feel happier and improve brain function, including memory and learning.



Decreases Depressive Episodes
Research has proven that there is a decreased incidence of depressive episodes in people who exercise regularly and are diagnosed with Major Depressive Disorder. It has also been shown that the severity of depressive episodes and their symptoms are lesser.



Improves Sleep and Increases Energy
Research has found that consistent exercise makes it easier to fall asleep and stay asleep at night.



It is Enjoyable and Fun!
The time you set aside for exercise can be relaxing time alone, or time to spend with others. Finding exercises that are enjoyable to you is crucial, or else it may feel like a burden in your day.



Both acute and chronic exercise have profound effects on your brain and body. Exercise is essential in regulating chemicals that are released in the brain. Exercise will allow the chemicals in your brain to reach and maintain an optimal level for health and happiness. Your brain will adapt by increasing, decreasing, or regulating certain chemicals' production and result. Here are some specific chemicals that exercise alters:

Serotonin

increases with exercise

Serotonin regulates anxiety, happiness, mood, and sleep cycles. Increased levels make you feel happier, calmer, and more focused. It also improves your gut health, so it will make your whole body feel better!

Adrenaline, Cortisol, & Norepinephrine

decreases with exercise

Chronic exercise reduces reactivity to stress hormones, which will decrease resting anxiety levels long term.

Oxytocin

increases with exercise

Oxytocin influences social bonding and trust. It also helps in reducing anxiety and stress levels long term.

How Exactly Does Exercise Impact Your Brain?

Endorphins

increases with exercise

Endorphins are naturally produced opioids which can help relieve pain and stress levels long term.

Dopamine

increases with exercise

With increased levels of dopamine, you will have a better mood, greater levels of motivation, sleep better, and be better equipped to learn. Dopamine creates a natural feeling of euphoria and bliss... who wouldn't love that!

Brain Derived Neurotrophic Factor

increases with exercise

Chronic exercise will increase levels of brain derived neurotrophic factor, which preserves cognitive function and fosters long term brain health. Brain derived neurotrophic factor prevents neurons in your brain and ultimately can make you a better learner and have better memory!

Can you notice similarities between the chemicals in your brain that affect your mental health and are affected by exercise?

Exercise Broken Down...

The American College of Sports Medicine uses the acronym **FITT** to show the recommended prescription of exercise to attain benefits.

Frequency—how often should you perform the exercise

Intensity—how hard you should be working

Time—how long you should be spending on the activity

Type—what kind of activity qualifies

The three major categories of exercise include: aerobic, resistance, and flexibility training. Each category has its own specific FITT recommendation.

Flexibility Training

Flexibility is defined as the ability to move a joint through a full range of motion. Flexibility training focuses on being able to increase the range of motion of major muscle groups.

Can you guess 2 activities that may classify as FLEXIBILITY training?



Aerobic Exercise

Any activity that uses large muscle groups in a rhythmic pattern. This type of exercise focuses on improving your cardiorespiratory fitness and endurance.

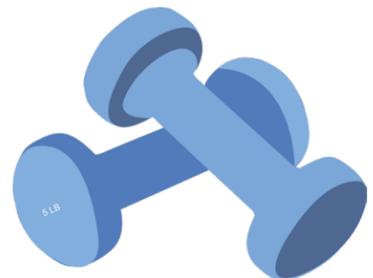
Can you guess 2 activities that may classify as AEROBIC training?



Resistance Exercise

An activity in which you are moving your body in a controlled manner against some type of resistance (gravity, bodyweight, weights, etc.). This type of exercise trains your muscles to increase strength, power, and endurance.

Can you guess 2 activities that may classify as RESISTANCE training?



Warm-Up and Cool-Down

Two important steps to every exercise session are a proper warm up and cool down. This is a very easy part of your workout to skip, but it is so important for safety and effectiveness of workouts. Warming up, before a session, and cooling down, after a session, is shown to reduce the risk of injury, decrease muscle soreness, and improve performance.

Warm-up:

- 5-10 minutes of a light aerobic activity followed by dynamic stretches. Dynamic stretches are transitional stretches through a range of motion, and that increase the range of motion as the movement is repeated.
- The goal is to gradually increase heart rate and blood flow to active muscles.
- Examples: Walking followed by high knees, jumping jacks, butt kicks, etc.

Can you think of a fun warm-up that will last 5-10 minutes?



Cool down:

- 5-10 minutes light aerobic activity followed by full body static stretching. Static stretching is a slow movement through a range of motion, ending with a hold at a position of mild discomfort.
- Goal is to gradually bring HR and blood pressure back to resting levels.
- Static stretching will alleviate muscle soreness, as well as increase flexibility.
- Should be performed after every exercise bout; hold stretch at a point of mild discomfort for 10-30 seconds; target full body.
- Example: Walking followed by touching toes, knee to chest, etc.

Can you think of a fun cool-down that will last 5-10 minutes of a light aerobic activity?



Flexibility/Stretching Prescription

Flexibility training can help reduce injuries in your muscles and joints, and can also decrease soreness following a workout. Performing a series of flexibility stretches after a workout is most beneficial due to the fact that warmer muscles will extend to a greater range of motion. Flexibility training can also assist in improving balance and posture.

Frequency: At least 2-3 days per week. Daily is most effective. This stretching is included in the warm-up and cool-down but it is also beneficial to have a separate session dedicated to improve flexibility.

Intensity: Stretch to the point of mild discomfort and tightness.

Time: Hold stretch for 10-30 seconds for 2-3 sets of each stretch.

Type: Target each major muscle group. Can be dynamic, static, or a combination of stretches. Examples of effective flexibility stretches include high skips, lunge hold, toe touch. Yoga classes are a great way to incorporate meditation into flexibility training.

Can you think of any more stretches you would like to do?



Aerobic Exercise Prescription

Frequency: Daily.

Intensity: Moderate with spurts of vigorous intensity.

Time: A part of a 60 minutes exercise. Preferably at least 30 minutes, can be accumulated from shorter spurts.

- Pedometers (step trackers) can be used to track daily fitness level – 60 minutes of activity is shown to equal 9,000-12,000 steps in a day.

Type: Enjoyable and developmentally appropriate rhythmic activities that incorporate large muscle groups.

- Walking for as little as 30 minutes a day 3 times a week has been found beneficial for mental health purposes.
- Examples: Walking, running, biking, tennis, flying a kite

What other examples can you think of?

How to Judge Aerobic Exercise Intensity?

Heart Rate assessment:

- An easy way to calculate an age predicted max heart rate is subtracting your age from 220.
 - Moderate: 64-76% of age predicted max heart rate
 - Vigorous: 77-95% of age predicted max heart rate

Can you calculate your age predicted max heart rate using this equation? (220-age)

Example: $(220-21) = 199$ beats per minute

This number shows how fast your heart is able to pump at your age.

Can you calculate your heart rate ranges?

Moderate: (Age predicted heart rate \times .64) =
(Age predicted heart rate \times .76) =

Vigorous: (Age predicted heart rate \times .77) =
(Age predicted heart rate \times .95) =

Example: $(199 \text{ beats per minute} \times .64) = 127$ beats per minute
 $(199 \text{ beats per minute} \times .76) = 151$ beats per minute

During moderate exercise my heart rate should be between 127-151 beats per minute.

The Talk Test

Moderate: During a workout, you should be able to carry on a conversation but could not sing.

Vigorous: Can't say more than a few words before having to stop and catch breath—do not get to the point where you cannot say anything.

Resistance and Bone Strengthening Exercise

Frequency: At least 3 days a week for both resistance and bone strengthening exercise.

Intensity: For resistance exercise, body weight, resistance bands, or weights are all good sources. If using weights, choose a weight that you are able to perform 8-15 repetitions for 2-3 sets, and the last few reps you moderately struggle with holding good form.

- You can get creative with what you use as weights. For example, milk jugs or cans of food are great options if you do not have access to traditional dumbbells.

Can you think of another household item you could use as a weight (that is safe & parent approved)?

Time: A part of a 60 minute exercise. When resistance training, perform 8-15 repetitions of an exercise, until moderately fatigued. Perform each exercise for 2-3 sets with a 1-2-minute active rest in between each. Structured resistance training should be done on non-consecutive days.

Type: Resistance training can be unstructured or structured activities. In both types of activities, the goal is to target every major muscle group (ex. legs, arms, core). Unstructured activities are more often thought of as playing. Some examples of unstructured resistance activities would be doing the monkey bars, climbing a tree, tug-of-war.

Can you think of any more unstructured resistance activities?

Structured resistance activities are things you would typically see someone doing in a gym and often involve knowledge of proper form. Some examples of structured resistance activities would be doing push-ups, squats, lunges (with or without weights or resistance bands). If you have access to a gym with machines, starting with machines may be beneficial to reduce injury and familiarize muscles.

Can you think of any more structured resistance activities?

Bone strengthening activities include activities that put repetitive stress and load on your bones in order to help them grow stronger. Some examples of bone strengthening activities include running, jump-rope, hopscotch.

Can you think of any more bone strengthening activities?

Now, How to Get Started?

How to Start:

- Consult with your doctor if you are new to exercise or if your medications are new or change. Medications can have side effects that can change the way your body responds.
- Create small attainable goals. Start by making short-term goals (daily-weekly), instead of long-term goals (monthly-yearly).
- Start small! Overcommitting will lead to inconsistency and will make exercise seem like a burden. Start by incorporating smaller chunks of time that will accumulate throughout the day, and then you can progress to longer periods of time.
- Start slow—too much new exercise too soon will cause your muscles to be sore which can be discouraging. Start slowly by doing activities you are used to and incorporate a few new things each week to get your body properly adapted.
- Make a weekly or daily schedule. This will help avoid finding excuses or reasons to not exercise. If you make exercise a part of your daily schedule it will become a habit.
- Find activities that are enjoyable and age appropriate.
- Track your progress. Keeping a journal of what you are doing each day and how you feel before and after can be a great way to see how you are improving over time!
- Vigorous exercise can be initiated after safely participating in moderate intensity exercise for at least a month. Prepubescent children should not participate in excessive amounts (60+ minutes daily) of vigorous exercise.

Keep in Mind:

- The FITT prescriptions provided above can be a goal to work towards. (This recommendation will achieve the most improvements, but walking for as little as 30 minutes three times a week has benefits.)
- Explore different types of activities. Choose places and activities that are well known to you when beginning, in order to decrease anxiety levels.
- Invite a partner! This will be effective to motivate each other and add social benefits.
- Decrease rumination and stress if you are with someone you are comfortable with (dogs make great walking partners too).
- Resistance training and aerobic exercise are both beneficial. If you are choosing one over the other, aerobic is known to have a more profound mental health benefits.
- On days where maybe you do not feel like exercising, or you are sore, take the day off. Remember, you should still make that day active! Rest days should not be an excuse to not move or watch TV all day. Get out for a leisure walk or any sort of movement!
- Look to join a team! Games and sports with friends can be both social and aerobically beneficial.

Exercise Bank

Arms/Shoulders	Back	Chest
Bicep Curl* Hammer Curl* Push-ups Triceps Dips Overhead triceps extension*/** Triceps Kickback* Monkey Bars Plank Shoulder Press* Lateral Raise*/** Upright Row* Wrist Curls*	Bent over row * Reverse Flies* Seated Row Monkey Bars Superman Plank Overhead Outward Push** Chin Ups Back Extensions Upright Row* Dumbbell Shrugs*	Chest Flies* Chest Press* Hand Plank Push-ups Bench Press* Parallel Bar Dips
Legs	Core	Cardio
Lunges—Forward/Reverse/Lateral ~ Squats ~ Hip Abduction ** Footprint Pulse Hamstring Curl with Exercise Ball or Towel Deadlift ~ Glute Kickback ** Bridge Pulse Step Ups ~ Stairs Monster Walk ** Clamshells ** Wall Sit ~ Leg Curl* Standing Calf Raise~	Bicycle Crunches Crunches Sit-ups Hand/Elbow Plank Butterfly Sit-Ups Flutter Kicks Mountain Climbers Plank Jacks Side Plank Lying Leg Raise Hanging Leg Raise Burpee	Jump Rope Bottom Half Burpee/Frogger Burpees Jumping Lunges Jumping Squats Mountain Climbers Jumping Jacks High Knees Sprint Lateral Leaps/ Skaters Stairs

Can you think of any more exercises to add to this exercise bank?

~ = weights could be used or body weight
 * = dumbbells or weights
 ** = resistance bands

Goal Building

The American College of Sports Medicine (ACSM) uses the acronym SMART as a guide to create effective goals.

Specific – Your goal is detailed, direct, and meaningful so you know what to accomplish.

Measurable – Your goal can be tracked or measured.

Attainable – Your goal is realistic, and achievable.

Relevant – Your goal aligns with what you want in your life.

Timely – Your goal has a reasonable deadline.

Your goals do not have to be limited to just exercise; they can include anything that you want to accomplish in your life! Your written goal should be 1 to 2 sentences and covers all the SMART components.

Here are some examples of SMART goals:

1. By the end of August, I will be able to run 2 miles without having to walk. I will do this by doing walk-run intervals at least 3 times a week for 45 minutes per day.
2. Every day in June, I will set aside 30 minutes every night before bed to read a book.
3. By the end of the summer, I will set more time aside to hang out with friends to de stress. I will begin setting aside at least one night a week to invite a friend over or go out with a friend.

Now you try, come up with at least 3 goals (1 about fitness, 1 about school/work, and 1 about your general lifestyle):

1.

2.

3.



Moving Forward

My hope is that after you complete this workbook, you feel that you have a better understanding of how to use exercise to enhance your physical and mental health. I hope you feel motivated to incorporate the tools and information that I have presented into your everyday life.

This workbook was specifically designed for the youth population, covering birth to 18 years of age. Both physical ability and personal interests change drastically throughout that period. Finding what is right for YOU is key to obtaining all the amazing benefits of exercise. So, make it a priority to find what you like and what makes you feel good!

I encourage you to get out there and try something new! Remember to explore different options and get creative! Exercise should not feel like another chore or burden - keep it light and fun.

Always remember, it is more important to be regularly active than it is to be fit.

Courtney Conley



Acknowledgments

Information from this book has been compiled from different resource materials:

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