The Benefits of Exercise for the Mental Health of Incarcerated Adolescent Females

A Research Paper

Presented to

The Faculty of the Adler Graduate School

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In Partial Fulfillment of the Requirements for

The Degree of Master of Arts in

Adlerian Counseling and Psychotherapy

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Abstract

Correlations between physical exercise and mental health have been empirically tested and validated since they were first noted in 1976. Exercise has been found to be beneficial for adults and teens with a variety of presenting problems including depression, anxiety, eating disorders, and chemical dependency issues. The juvenile delinquent population continues to rise as over two million arrests are made each year, demonstrating an increased need for juvenile service providers. Female juvenile arrests continue to rise as well, illustrating a need for enhanced treatment methodology. The purpose of this project is to demonstrate how exercise can be utilized as a treatment method in mental health settings. In order to demonstrate this alternative treatment to mental health issues, prior research and practical experience will be utilized to develop a method consistent with empirical findings. The project encompasses the mind/body connection, as well as the benefits exercise has on an individual’s private logic. An incarcerated individual, especially with the body image issues of a female, packs mistaken beliefs that can be a barrier to contemporary therapeutic techniques. When implemented, this project will adhere to the mind body connection, assist in mistaken beliefs that are a barrier to treatment, and will depict how private logic can be used as motivator to incorporate mental health with physical exercise.
The Benefits of Exercise for the Mental Health of Incarcerated Adolescent Females

The overall goal of this integrative paper is to illustrate how Adler’s theory of the use of lifetime skills accomplishes the teaching of responsibility for the changes that occur within the client. The purpose of the program is to implement healthy alternatives to treatment for incarcerated females. Treatment for incarcerated females will function off of a six-month program time frame. The program will be broken into 20-minute increments seven times a week. A systematic step-by-step process will be in place for the female at the time of admission. Following the intake process of reason for placement, the incarcerated female will be introduced to her treatment team. During her initial treatment team meeting, the female will be provided with the guidelines, benefits, and risk factors of the physical implications of the program. Following the introduction, the client will be provided with a health screening and will consent to participate through the guardian of the youth. The health screening will be the initial step to starting the program. The screening will be used as a tool to measure endurance, prior medical history, age, weight, and goal setting. Following the goal setting, the youth will be provided a tour and step-by-step training of the equipment used to assist in the holistic integration of this technique. The following step will focus on overall mental health needs.

The youth will process the lifestyle analysis so the patterns of mistaken beliefs will be implemented into the treatment plan and long-term plan of overcoming unhealthy private logic that interrupts treatment. The following step would include setting up the duration and frequency. The benefit of my exercise plan for incarcerated females is it takes into account the limited recreational time frames in residential treatment. Therefore, my plan allows for duration and intensity to have the maximum effect in their workout plan and strategy. Progress will be
tracked through a four-week period utilizing measurement of BMI (body mass index) and weight.

**The Link between Exercise and Mental Health**

First identified by Thaddeus Kostrubala in 1976, the correlation between physical activity and mental health has been researched relative to a variety of mental illnesses throughout the past four decades (McPhail, 2006). According to the author, Kostrubala’s book, *The Joy of Running*, was a summary of his research in this field and it successfully demonstrated that patients with histories of depression and psychosis were able to experience a general relief of symptoms with regular physical activity. The authors went on to state that Kostrubala’s efforts were confirmed by several studies including a 1996 study; *Physical Activity and Health – A Report of the Surgeon General*. This report not only demonstrated the benefits of physical activity, but it provided empirical data backing Kostrubala’s earlier findings that regular physical activity did indeed lead to a general relief of some mental health symptoms.

Contemporary psychology continues to recognize the link between physical activity and mental health. The Centers for Disease Control (CDC) indicated that the original paradigm of exercising for 30 minutes, three times per week must be shifted to incorporate the increasing demands of modern life (McPhail, 2006). Based on prior findings, the CDC created a new user friendly approach based on finding methods that remained applicable following the termination of therapy (McPhail, 2006). The authors also stressed the importance of duration, rather than intensity, and the process of breaking the sessions into two or three shorter sessions. According to the authors, the final, most modernized approach was to incorporate household chores and hobbies into the physical activity category. The following formula was created to assist individuals in tracking total daily activity: $kcal_{\text{exercise}} + kcal_{\text{nonexercise}} = kcal_{\text{total daily physical activity}}$
(Caspersen, Powell & Christianson, 1985). The CDC focus groups also demonstrated that the term ‘physical activity’ had a higher approval rating within the general public than the term ‘exercise’ since it decreased focus on intensity and gave the individual more options (McPhail, 2006). “Physical activity is defined as bodily movement produced by skeletal muscles that results in energy expenditure” and exercise is described as a subtype of physical activity that is “planned, structured, and repetitive” (Caspersen et al., 1985). The authors created the table below to illustrate the similarities and differences between the two terms.

<table>
<thead>
<tr>
<th>Elements of Physical Activity and Exercise</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PHYSICAL ACTIVITY</strong></td>
<td><strong>EXERCISE</strong></td>
</tr>
<tr>
<td>Bodily movement via skeletal muscles</td>
<td>Bodily movement via skeletal muscles</td>
</tr>
<tr>
<td>Results in energy expenditure</td>
<td>Results in energy expenditure</td>
</tr>
<tr>
<td>Energy expenditure (kcal) varies</td>
<td>Energy expenditure (kcal) varies</td>
</tr>
<tr>
<td>continuously from low to high</td>
<td>continuously from low to high</td>
</tr>
<tr>
<td>Positively correlated with physical fitness</td>
<td>Very positively correlated with physical fitness.</td>
</tr>
<tr>
<td></td>
<td>Planned, structured, and repetitive body movement.</td>
</tr>
<tr>
<td></td>
<td>An objective is to improve or maintain physical fitness component(s).</td>
</tr>
</tbody>
</table>

**The Need for Services**

Each year nearly two million juvenile arrests take place and 100,000 juveniles are in custody on any given day (Abram et al., 2008). According to Lederman et al. (2004), arrest rates for female juveniles have risen 35%, whereas male juvenile arrest rates are down 11%. Of these females, 70% have psychiatric issues other than Conduct Disorder and half of those have two or more diagnoses (Abram et al., 2008). The authors noted that the juvenile delinquent population also has a higher incidence of mental illness and a lower use of psychiatric services. They also reported that service rates are low among juvenile delinquents due to poverty, poor education, insufficient health insurance, minority status, history of arrest, and limited social networking. Juvenile delinquents also share a set of common stressors including poor role modeling, histories...
of trauma, limited structure, hostile or chaotic environments, inconsistency, devaluation of societal norms, limited problem solving capabilities, and safety concerns (Steptoe, Kimbell & Basford, 1998; U.S. Department of Health and Human Services, 1997).

According to a report published by the U.S. Department of Health and Human Services (1997), juvenile females are twice as likely to be inactive as their male counterparts. The report also indicated that females have higher incidences of body image issues, low self-esteem, and limited sense of mastery. The differences noted by Calhoun (2001), between female juvenile delinquents and males are summarized in the following chart. The author found that females had higher numbers in the at-risk range in 9 out of 14 areas including: anxiety, attitude to school, attitude to teachers, atypicality, depression, locus of control, sensation seeking, sense of inadequacy, social stress and somatization.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Gender</th>
<th>Normal Range</th>
<th>At-Risk/Clinical Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety*</td>
<td>Male</td>
<td>44</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>36</td>
<td>8</td>
</tr>
<tr>
<td>Attitude to School</td>
<td>Male</td>
<td>33</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>31</td>
<td>13</td>
</tr>
<tr>
<td>Attitude to Teachers</td>
<td>Male</td>
<td>34</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>30</td>
<td>14</td>
</tr>
<tr>
<td>Atypicality</td>
<td>Male</td>
<td>37</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>35</td>
<td>9</td>
</tr>
<tr>
<td>Depression</td>
<td>Male</td>
<td>38</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>35</td>
<td>9</td>
</tr>
<tr>
<td>Interpersonal Relations</td>
<td>Male</td>
<td>44</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>44</td>
<td>0</td>
</tr>
<tr>
<td>Locus of Control*</td>
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<td>41</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>30</td>
<td>14</td>
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<tr>
<td>Relations with Parents</td>
<td>Male</td>
<td>44</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>44</td>
<td>0</td>
</tr>
</tbody>
</table>
### Benefits of Exercise for Female Juveniles

According to a study by Kirkcaldy (2002), 90% of preteens engage in regular physical activity, whereas only 67% of males and 49% of females engage in physical activity during the following six years. A negative correlation has also been found between regular physical activity and mental illness in the United States (Stathopoulou et al., 2006). Exercise has the potential to increase distress tolerance and decrease disruptive coping behaviors, while increasing overall physical health. In a study by Basile et al. (1995), fifty-eight children demonstrating disruptive behaviors were divided into three groups: 1) jogging/walking; 2) performing a mastery task; 3) no treatment. This same study concluded that exercise can decrease the frequency and intensity of disruptive behaviors versus no treatment, but there was little differentiation between the forms of activity. Another study by Steptoe et al. (1988) demonstrated that the stress response is lowered after exercise, increasing one's ability to cope with stressful situations.

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Esteem</td>
<td>44</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>44</td>
<td>0</td>
</tr>
<tr>
<td>Self-Reliance</td>
<td>44</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>44</td>
<td>0</td>
</tr>
<tr>
<td>Sensation Seeking</td>
<td>34</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>4</td>
</tr>
<tr>
<td>Sense of Inadequacy</td>
<td>39</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>33</td>
<td>11</td>
</tr>
<tr>
<td>Social Stress*</td>
<td>41</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>29</td>
<td>15</td>
</tr>
<tr>
<td>Somatization</td>
<td>36</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>29</td>
<td>15</td>
</tr>
</tbody>
</table>

*p<.01
Neurochemically, exercise has many benefits. Physical exercise causes neurochemical production that has the capability for improving mood and reducing symptoms of depression (McPhail, 2006). The authors indicated that Oxytocin, the neurochemical produced during physical activity is also present during formation of friendships, increasing feelings of trust. It was also noted that Oxytocin is also a potent stress reliever. According to Stathopoulou et al., (2006), exercise also increases other neurochemicals including serotonin and endogenous opiates.

Physical activity provides a strong base for individuals to build their self-esteem (Liga, 2004). “Among secondary physical education instructors, 59 percent said that self-esteem was a primary benefit of physical fitness.” (U.S. Department of Health and Human Services, 1997). Research has shown “females are generally more negative about their bodies and are concerned with physical beauty and maintaining an ideal thin shape”. Studies have also shown individuals who demonstrate negative regard for their bodies generally have other psychological disturbances (Fisher & Cleveland, 1956).

According to the U.S. Department of Health and Human Services (1997), the largest issue with body image is found in the disparity between the real self-image and the perceived self-image. According to the authors, body image has been demonstrated to vary based upon racial and ethnic differences. They also noted that African American females generally have a more positive body image than do their Native American and Caucasian counterparts. The authors illustrated that in studies at the Melpomene Institute, females from a variety of backgrounds were asked to explore reasons for exercise. The authors highlighted that these studies compiled the top three responses including recreation, health, and self-esteem. Finally, the authors stated that in addition to positive self-esteem and body image, physical exercise has
also been linked to motivation, moral development, emotional well-being, reducing anxiety symptoms, and mastery over one’s environment.

An active lifestyle is often attained through encouragement, training, and support (U.S. Department of Health and Human Services, 1997). The authors also indicated that regular activity also reduces the risk of many chronic diseases including obesity, hyperlipidemia, coronary heart disease, and certain cancers. In a study conducted by Brown and Siegel (1988), a sample of 364 females in grades 7-11 were divided into groups based on the amount of exercise they received; high and low. The authors used the Life Events Survey in concordance with the Seriousness of Illness Rating Scale to assess individuals in each group. Findings indicated that those in the high exercise group rated lower stress and illness than the low exercise group. Brown and Lawton also conducted a study of the frequency of exercise in relation to stress levels and found that low exercisers experienced more intense and more frequent stress than their study counterparts. In addition to health benefits, female athletes also have been shown to do better in school and have a lower dropout rate than their counterparts (U.S. Department of Health and Human Services, 1997).

**Benefits of Exercise for Incarcerated Female Juveniles**

According to Faulkner et al., (2006), “sport and physical activity are seen as vehicles of social policy aimed at reducing delinquency among young people.” Competitive and collaborative activities alike allow for juveniles to form new positive acquaintances and learn cooperation and negotiation in a secure and consistent setting (U.S. Department of Health and Human Services, 1997). Incarcerated juveniles often have difficulties remaining goal and achievement oriented following their release (Mincey et al., 2008). Juveniles may be tempted to fall into past patterns of problematic behavior upon failures with their newly learned techniques.
Physical exercise in its repetitive and challenging nature provides both a positive outlet for frustrations and practice for further challenges.

**Exercise as a Treatment Modality**

Exercise as a method of therapy has much potential. In a study conducted by Greist et al. (1979), individuals were split into three groups: aerobic exercise, time limited therapy, and time-unlimited therapy (Martinsen, 2008). According to the author, each group was rated in terms of anxiety and depression prevention and treatment. The study found that aerobic exercise provided results equally as beneficial as time-limited therapy and better results than time-unlimited therapy. According to the U.S. Department of Health and Human Services (1997), anxiety levels have been proven to lower following aerobic exercise. Blumenthal et al. (1999) conducted a similar study using exercise and antidepressants (Martinsen, 2008). The results of this study showed that those on antidepressants recovered more quickly; however, at the twelve week mark both groups had improved. Finally the authors noted, at the ten-month mark those persons exercising had maintained their improvements at a higher rate than those on antidepressant medication. According to Stathopoulou et al. (2006), there have been successful clinical applications involving exercise intervention within many populations. The authors noted that exercise added to alcohol treatment programs resulted in lower overall cravings and a higher rate of recovery. In coordination with treatment for eating disorders, a regular exercise routine resulted in less compulsory exercise and 1/3 higher weight gain in persons with anorexia. The authors also identified that exercise was also associated with improvements in the sleep cycle which is affected by depression and anxiety. Finally, the authors noted that exercise can also lessen the sensitivity of anxiety responses by allowing individuals to experience rapid heart and breath rates in positive and enjoyable ways.
Most forms of exercise are deemed to be equally beneficial in studies conducted by Doyne et al. (1987), and Sexton et al. (1989) (Martinsen, 2008). Doyne et al. (1987) conducted a study in which women were assigned to three different groups; running, weight lifting and no exercise (Stathopoulou et al., 2008). The authors concluded that both exercise groups were beneficial and proven to be more effective than no exercise. According to the authors, interventions can be identified by frequency, duration, intensity and total energy expenditure.

According to Stathopoulou et al., (2008), there are several guidelines that must be followed for successful implementation of an exercise program. Each participant must receive a health screening. The authors noted that the individual creating the program must be able to provide a variety of exercises, taking into account age, gender, prior experience and accessibility to equipment. The authors also noted that the creator should also take into consideration the length of each workout and be sure to correlate the time with intensity. Finally the authors outlined that the program should also be at least four weeks long with the intensity increasing as the program progresses.

**Adlerian Perspective**

McBrien (1985) points out that “Adlerians recognize that the process of learning and applying lifetime skills accomplishes the counseling goal of teaching clients to take responsibility for the changes that occur in their lives” (p473). Exercise is a lifetime skill that empowers clients to change. The author also pointed out that individuals who are depressed also tend to focus time and energy on unpleasant events and ignore positive events. The author also noted that exercise allows the client to track successes and learn to plan for pleasant activities. Alfred Adler believed in the reciprocal nature of the mind and body (Ansbacher & Ansbacher,
1956; Zarski et al., 1982). That is, the mind is able to create physical symptoms in concurrence with emotional symptomology.

Adler’s primary concept, social interest, is defined as “the relationship between mental health and life task adjustment” (Zarski et al., 1982). In a study by the authors, a sample of males and females were asked to complete the Bell Adjustment Inventory prior to being assigned to a group. The authors created two groups, one running ten miles per week and the other a low exercise group. The authors reported that the results demonstrated that runners were more likely to also have high social interest and life adjustment.

It has also been noted that an individual’s lifestyle and emotions exert a continuous influence on the development of self (Zarksi et al., 1982). Self-concept is most commonly defined as the individual’s disposition toward themselves and the world around them (Basile et al., 1995). The author noted that in a study conducted by Marsh and Pert it was determined that weight training has the potential to enhance self-concept. Individuals were enrolled into a 12-week strength training program and divided into two groups; competitive and cooperative (Basile et al., 1995). Marsh and Pert found that both groups were more physically fit. However, the cooperative program participants demonstrated an enhanced self-concept whereas the competitive participants appeared to have diminished self-concept (U.S. Department of Health and Human Services, 1997).

**Conclusion**

Physical exercise has been found to be useful in variety of mechanisms. Exercise has the potential to decrease the frequency and intensity of disruptive behaviors, treat anxiety and depression, increase self-esteem, and increase the individual’s ability to cope with stressful situations. Several considerations must be taken into account, prior to beginning a treatment
program shaped by physical exercise. These considerations include the health, age, and gender of the client. The therapist can modify frequency, duration, intensity, and total energy expenditure based upon these special considerations.

The core of this project allows my passion for personal wellness and overall health to permeate through facilities of downtrodden adolescents with a vulnerable population. I have 26 years of experience in residential programming and facilities. I have seen first-hand the endless untapped opportunities for youth within a controlled residential setting. Incarcerated females carry mistaken beliefs that lead to a high rate of treatment impasse, as well as a lack of trust with caregivers. Pair the high mistrust levels with conduct disorder, and I have seen the recipe for treatment impasse and missed opportunities to build therapeutic relationships. The project allows the therapist and the treatment team to have equal opportunity to be trained and to provide healthy treatment and reach treatment goals.

This project could easily be researched to prove evidenced based programming if the BASC was introduced and tracked the progress of the reduction of symptoms. This project implements a holistic approach to treatment as well as an integrated dual diagnosis model for recovery. The main component of this project is bridging the gap between contemporary therapy and alternatives to treatment and enhancing the therapeutic relationship. Providing a physical outlet allows the barriers of traits of conduct disorder, trust issues, and histories of trauma to dissolve as kids enhance their inner selves, build identity, learn positive alternatives, take personal responsibility, and overcome unhealthy lifelong patterns of private logic and exchange their past for a healthy fabric of life.
References


Appendix

Day 1
Triceps
- Triceps down extensions- Do 3 sets of 12
- Triceps dumbbell extensions- Do 3 sets of 12
- Triceps dumbbell kickbacks- Do 3 sets of 12
- Dips- Do 3 sets of 12
  Declined bench sit-ups –Do 5 Sets of 12, increase weight with each additional set of at least 5 pounds
  “See Appendix A1”

Day 2
Biceps
- Concentration curls- Do 3 sets of 12
- Hammer curls- Do 3 sets of 12
- Preacher curls- Do 3 sets of 12
- Frog Kicks- Do 3 sets of 12
  “See Appendix A2”

Day 3
Chest
- Dumbbell flyes- Do 3 sets of 12
- Bent lateral raises- Do 3 sets of 12
- Pushups- Do 3 sets of 12
- Dumbbell bench press- Do 3 sets of 12
- Crunches- Do 3 sets of 12
  “See Appendix A3”

Day 4
Shoulders
- Seated barbell press- Do 3 sets of 12
- Barbell shrugs- Do 3 sets of 12
- Side lateral raises- Do 3 sets of 12
- Front lateral raises- Do 3 sets of 12
- Plate raises- Do 3 sets of 12
“See Appendix A4”

Day 5
Chest
  Bench press- Do 3 sets of 12
  Incline bench press- Do 3 sets of 12
  Decline bench press- Do 3 sets of 12
  Reverse crunches- Do 3 sets of 12

“See Appendix A5”

Day 6
Shoulder Utility
  Lying barbell- Do 5 sets of 12
  Seated barbell press- Do 5 sets of 12
  Cable upright rows- Do 5 sets of 12
  1 arm dumbbell row- Do 5 sets of 12
  Crunches on stability ball- Do 5 sets of 12

“See Appendix A6”

Day 7
Legs
  Squats- Do 5 sets of 12
  Lying leg curls- Do 5 sets of 12
  Leg extensions- Do 5 sets of 12
  Seated calf raises- Do 5 sets of 12
  Leg raise- Do 5 sets of 12

“See Appendix A7”
Appendix A1

Day 1

Tricep Push Downs

This exercise targets the triceps, particularly the outer head of the triceps.

Attach a bar to an overhead pulley. Stand in front of the pulley with your feet shoulder width apart. Grab the bar with a narrow overhand grip. Bend your arms fully and tuck your elbows close to your sides at all times during the exercise.

By using just your forearms, push the bar down in an arc motion until your arms are straight. Hold this position and squeeze your triceps for a second to maximize the peak contraction. Slowly lower to the starting position. Repeat.

Tips - do not let the weight plates touch during the exercise, keep the tension on the triceps muscles. For variety you can use different bars attached to the overhead pulley (i.e. rope, ez bar, V bar, etc.) to work the muscles at different angles.
Tricep Dumbbell Extensions

This exercise works the triceps, particularly the long inner head of the triceps.

Grab a dumbbell with one hand. Stand with your feet shoulder width apart. Lift the dumbbell so that it is at arms-length straight above your shoulder. Keep a slight bend in your knees to take pressure off the lower back.

Lower the dumbbell in an arc motion behind your head until your elbow is at a 90-degree angle. Lift the dumbbell in an arc motion back to the starting position. Repeat for the desired number of reps. Do the same for the other arm.

Tip - You can do this exercise with both arms at the same time by using a barbell, two dumbbells, or holding 1 dumbbell with two hands.
Tricep Dumbbell Kick Backs

This is a good exercise to hit all three heads of the triceps with a good peak contraction.

Brace yourself against a flat exercise bench. Grab a light dumbbell in one hand. Place your other hand on the bench to support yourself.

Keep your upper arm along the side of your torso during the entire exercise. Moving just your forearm lift the dumbbell in an arc motion until your arm is straight. Hold this position for a couple of seconds to maximize the peak contraction in the triceps. Slowly return the dumbbell to the starting position. Repeat
Dips

This exercise works the triceps as well as the chest and shoulders.

Grab a pair of parallel bars so the palms of your hands are facing each other. Straighten your arms and bend your knees. Support yourself between the bars.

Lean your torso forward as you do the exercise. Slowly bend your arms and lower your body between the bars until your elbows are at 90-degree angles. Hold this stretched position for a second. Steadily push yourself back up to the starting position. Repeat.

Note: this is an advanced exercise because you have to be able to lift your entire bodyweight. As you get stronger you can add extra weight to the exercise by hanging weights from your waist using a weight belt.
Decline Bench Situps

This exercise stresses the rectus abdominis, particularly the upper half of the frontal abdominal wall.

Sit on a decline bench and place your feet under the foot pads to restrain your legs. Either cross your arms over your chest, or place them behind your head to support your neck.

Sit up and squeeze your abs at the top. Hold this position for a second. Slowly lower your torso back up to the starting position. Repeat.
Appendix A2

Day 2

**Dumbbell Concentration Curls**

This exercise isolates the biceps and is good for getting a peak contraction in the muscles.

Sit at the end of an exercise bench with your legs spread. Reach down between your legs and pick up a dumbbell with one hand. Brace your elbow against your knee and fully straighten your arm. Place your other hand on your opposite leg to support your upper body.

Moving only your forearm, use your bicep strength to curl the dumbbell up to shoulder level. Hold this position for a couple of seconds to maximize the peak contraction in the biceps. Slowly
lower the dumbbell to the starting position. Repeat for the desired number of reps. Do the same for your other arm.

**Dumbbell Curls**

This exercise is similar to the dumbbell hammer curls. It works the biceps, brachialis, and forearms.

Grab a pair of dumbbells. Stand with your feet shoulder width apart. Let the dumbbells hang at arms length on each side of your body. Keep your elbows close to your torso at all times and keep the palms of your hands facing up.

Moving only your forearms, use your bicep and forearm strength to curl the dumbbells up to shoulder level. Do not rotate your hands as you curl the dumbbells. Hold the top position for a second to maximize the peak contraction in the biceps. Slowly lower the dumbbells to the starting position. Repeat.

Tips - do not lift excess weight and use momentum to swing the dumbbells up. Use a lighter weight and keep the movement slow and controlled. For variety you can do this exercise with one arm at a time.
Preacher Curls

This exercise isolates the biceps. Secondary stress is applied to the forearms.

Sit on a preacher bench with your upper arms lying flat on the pad, palms of your hands facing up. Grip the barbell with an underhand grip. Lower the barbell until your elbows are almost straight and you feel a good stretch in the biceps.

Moving only your forearms, use your bicep strength to curl the barbell up. Slowly lower the barbell back to the starting position. Repeat.
Frog Kicks

This exercise works the frontal abdominals, especially the lower half of the abdominal muscles.

Sit on the floor or a flat bench with your legs out straight. Place your hands palms down behind you. Lean back slightly and use your abdominal strength to lift your legs.

Simultaneously bend your legs and bring your knees as close to your chest as possible. Slowly straighten out your legs and return to the starting position. Repeat. Do not let your feet touch the floor during the exercise, keep the tension on the abdominal muscles.
Appendix A3

Day 3

**Dumbbell Fly’s**

This exercise works the entire chest area, but you can target specific areas of your chest depending on the angle of the bench. For example, a flat bench will target the entire chest, an incline bench will target the upper chest, and a decline bench will target the lower chest.

Grab 2 dumbbells and lie back on a bench. You may want to have a training partner hand the dumbbells to you to make it easier to get into position. Extend your arms straight above chest with the palms of your hands facing each other. Keep a slight bend in your elbows.
Without bending your arms, slowly lower the dumbbells in semicircular arcs until they are level with your shoulders. Do not overemphasize the stretch at the bottom of the rep because you could injure your shoulder joints. Using your chest strength bring your arms back together in semicircular arcs. Repeat.
Bent Lateral Raises
(also known as "Bent Over Dumbbell Fly’s")
This exercise works the rear (posterior) deltoids. Secondary stress is applied to the upper back muscles and forearms.

Grab 2 light dumbbells. Bend over at the waist with your feet shoulder width apart. Keep a slight bend in the knees to prevent stain on the lower back. Hold the dumbbells at arms-length in front of you with the palms of your hands facing each other. Keep a slight bend in your elbows.
Using your rear deltoid and upper back strength, raise the dumbbells to the back and upwards in a semicircular arc as far as you can. Hold this position for a second to maximize the peak contraction in the rear deltoids. Lower the dumbbells back to the starting position. Repeat.

Tips - to really isolate your deltoids you can do this exercise lying face down on a high exercise bench. This will eliminate any body motion.
Push Ups

This is a basic exercise that works the entire chest area. Secondary stress is placed on the shoulders and triceps.

Lie face down on the floor. Place your hands palms down on each side of your body. Keeping your legs and torso in a straight line push yourself up and support your upper body on your arms.

Slowly lower yourself until your chest is about an inch from the floor. Hold this stretched position for a second. Push yourself back up to the starting position. Repeat.

This is a good exercise to use either as a warm up to your chest exercises or as a finishing exercise to really pump up your chest.
Crunches

This is one of the best abdominal exercises. It works the rectus abdominis, particularly the upper half of the frontal abdominal wall.

Lie on your back on the floor. Your feet should be flat on the floor shoulder width apart with your knees bent at a 90-degree angle. Place your hands behind your head for support.

Without pulling on your neck, slowly lift your shoulders off the floor using your abdominal strength. Breath out as you contract your abs. Hold this position for a couple of seconds to maximize the peak contraction in the abs. Slowly lower yourself to the starting position. Repeat.

Appendix A4
Day 4

**Seated Barbell Press**
(also known as the "Military Press")

This is a basic shoulder exercise that works the anterior (front) deltoids and the triceps. It also works the upper chest and upper back as secondary muscles.

Sit on an upright bench. Grab the barbell with a wider than shoulder width grip. Push the barbell directly upward until it is at arms-length above your shoulders. Lower the barbell back to starting position. Repeat.

This exercise can be done lowing the barbell to the front or behind the head. But some people find that the behind the head version places more stress on the shoulder joints.
Barbell Shrugs

This exercise is excellent for working the traps. Secondary stress is placed on the forearms from gripping the weights.

Grip a barbell shoulder width apart. Stand upright with your feet shoulder width apart. Hold the barbell at arms-length in front of you.

Keep your arms straight during the entire movement. By lowering your shoulders downward as far as you can. You will feel your traps stretch, hold this position for a second. Shrug your shoulders upward and squeeze your traps at the top. Hold this position for a second. Repeat.
Side Lateral Raises

This exercise works the medial (side) deltoids. Secondary stress is applied to the front deltoids and the forearms.

Grab 2 light dumbbells. Stand with your feet shoulder width apart. Hold the dumbbells just in front of your body with the palms of your hands facing each other. Keep a slight bend in your elbows.

Using your deltoid strength, raise the dumbbells out to the sides and upwards in a semicircular arc until they are just above shoulder level. Hold this position for a second to maximize the peak contraction in the deltoids. Lower the dumbbells back to the starting position. Repeat.

Tip - to really isolate your deltoids you can do this exercise seated on a bench. This will eliminate any body motion.
Front Lateral Raises

This exercise works the font (anterior) deltoids. Secondary stress is applied to the side deltoids and the forearms.

Grab 2 light dumbbells. Stand with your feet shoulder width apart. Hold the dumbbells at your sides with the palms of your hands facing each other. Keep a slight bend in your elbows.

Using your deltoid strength, raise the dumbbells to the front and upwards in a semicircular arc until the dumbbells are just above shoulder level. Hold this position for a second to maximize the peak contraction in the deltoid. Lower the dumbbells back to the starting position. Repeat.

Tips - to really isolate your deltoids you can do this exercise seated on a bench. This will eliminate any body motion. For variety you can do this exercise with a barbell instead of dumbbells.
Plate Raises

This exercise works the front (anterior) deltoids. Secondary stress is applied to the side deltoids and the forearms.

Grab a weight plate with your hands on the sides, as if you were holding a steering wheel of a car. Stand with your feet shoulder width apart. Keep a slight bend in your elbows.

Using your deltoid strength, raise the weight plate to the front and upwards in a semicircular arc until the plate is just above shoulder level. Hold this position for a second to maximize the peak contraction in the deltoid. Lower the plate back to the starting position. Repeat.
Appendix A5

Day 5

**Bench Press**

This is a great upper body exercise. It works the entire pectoral area, deltoids, and triceps. Secondary stress is applied to the latissimus dorsi muscles, biceps, and forearms to help stabilize and balance the barbell.

Place a barbell on the rack of a bench pressing bench. Lie back on the bench. Place your feet flat on the floor on each side of the bench. Grab the bar just a bit wider than shoulder width. Straighten your arms to lift the barbell off the rack. Position the bar so it is at arms-length over your chest.
Lower the barbell until it touches your chest. As you lower the bar keep your elbows tucked so that your upper arms are at a 45-degree angle to the side of your body. Do not let your upper arms go straight out to the sides because it will place too much strain on your shoulder joints. Without bouncing the bar off your chest push the bar up until it is back to the starting position. Repeat.

Tips - you should always have a training partner spot you when doing the bench press, just in case you need help lifting the barbell off your chest. For variety you can do this exercise with dumbbells instead of a barbell.

### Incline Bench Press

This is very similar to the bench press, it works the same muscle groups (i.e. pectorals, deltoids, and triceps). Except the incline bench press works more of the upper chest.
Lie back on an incline bench pressing bench. Place your feet flat on the floor on each side of the bench. Grab the bar just a bit wider than shoulder width. Straighten your arms to lift the barbell off the rack. Position the bar so it is at arms-length over your upper chest.

Lower the barbell until it touches your upper chest. As you lower the bar keep your elbows tucked so that your upper arms are at a 45-degree angle to the side of your body. Do not let your upper arms go straight out to the sides because it will place too much strain on your shoulder joints. Without bouncing the bar off your chest push the bar up until it is back to the starting position. Repeat.

Tips - you should always have a training partner spot you when doing the incline bench press, just in case you need help lifting the barbell off your chest. For variety you can do this exercise with dumbbells instead of a barbell.
Decline Bench Press

This is very similar to the bench press, it works the same muscle groups (i.e. pectorals, deltoids, and triceps). Except the decline bench press works more of the lower chest.

Lie back on a decline bench pressing bench. Hook your feet in the foot pads on the end of the bench. Grab the bar just a bit wider then shoulder width. Straighten your arms to lift the barbell off the rack. Position the bar so it is at arms-length over you lower chest.

Lower the barbell until it touches your lower chest. As you lower the bar keep your elbows tucked so that your upper arms are at a 45-degree angle to the side of your body. Do not let your upper arms go straight out to the sides because it will place too much strain on your shoulder joints. Without bouncing the bar off your chest push the bar up until it is back to the starting position. Repeat.
Tips - you should always have a training partner spot you when doing the decline bench press, just in case you need help lifting the barbell off your chest. For variety you can do this exercise with dumbbells instead of a barbell.

**Reverse Crunches**

This exercise works the entire abdominal muscle wall, particularly the lower half of the muscle group.

Lie on your back on the floor. Your feet should be flat on the floor shoulder width apart with your knees bent at a 90-degree angle. Place your hands behind your head for support.
Keeping your legs bent, slowly lift them off the floor using your abdominal strength. Breathe out as you contract your abs. Hold this position for a couple of seconds to maximize the peak contraction in the abs. Then lower your legs slowly back to the starting position. Repeat.

Tip - to make this exercise harder you can do it with your legs out straight.
Appendix A6

Day 6

Seated Barbell Press
(also known as the "Military Press")

This is a basic shoulder exercise that works the anterior (front) delts and the triceps. It also works the upper chest and upper back as secondary muscles.

Sit on an upright bench. Grab the barbell with a wider than shoulder width grip. Push the barbell directly upward until it is at arms-length above your shoulders. Lower the barbell back to starting position. Repeat.
This exercise can be done lowering the barbell to the front or behind the head. But some people find that the behind the head version places more stress on the shoulder joints.

**Lying Barbell Extensions**

This exercise works the triceps, particularly the large inner head of the muscle.

![Lying Barbell Extensions](image)

Lie back on a flat bench. Feet shoulder width apart on each side of the bench. Have a training partner hand you a barbell. Grip it with your hands place a bit narrower then shoulder width. Press the barbell up until it is at arms-length above your shoulders.

Moving only your forearms lower the barbell in an arc motion until it is about an inch above your forehead. Using your triceps strength push the bar back up in an arc motion to the starting position. Repeat.
Tips - have a training partner spot you while you are doing lying barbell extensions just in case you need help lifting the weight.

**Cable Upright Rows**

This is a good exercise for working the muscles of your shoulder girdle. Primary muscles are the traps and the deltoids. Secondary muscles are the biceps, brachialis, and the forearms.

From a low pulley cable hold a rope or handle attachment. Stand upright with your feet shoulder width apart. Keep your elbows above your hands at all times. Pull the cable directly up from the starting position until your elbows are shoulder height. Hold this position for a second to maximize the peak contraction, then lower to the starting position. Repeat.

This exercise can also be done with a barbell or dumbbells. However, I personally find using a rope attachment from a low pulley much more comfortable on the wrists, elbows, and shoulder joints.
One Arm Dumbbell Row

This exercise works the latissimus dorsi, trapezius, biceps, and the forearms.

Kneel on a flat exercise bench with one knee, you other foot placed on the floor beside the bench. Support your upper body by placing your hand on the end of the bench. With your other hand grab a dumbbell. Keep your back flat and let the dumbbell hang down at arms-length.

Keeping your elbow close to your side, pull the dumbbell directly upwards until it touches the side of your torso. Squeeze your back muscles for a second to maximize the peak contraction. Lower the dumbbell back to the starting position. Repeat for the desired number of reps. Do the same for your other arm.
Crunches On The Stability Ball

This exercise works the entire rectus abdominis, but because you have to balance yourself on the ball it focuses on developing the small stabilizer muscles.

Lie back on the stability ball. Place your feet flat on the floor (Note: the closer you place your feet the harder it is to balance on the ball). Place your hands behind your head for support.

Without pulling on your neck, slowly lift your shoulders using your abdominal strength. Breath out as you contract your abs. Hold this position for a couple of seconds to maximize the peak contraction in the abs. Slowly lower yourself back to the starting position. Repeat.
Appendix A7

Day 7

Squats

This is the single best leg exercise that you can do. Squats work the quads, glutes, hamstrings, and hips. It also works the upper and lower back, and abdominals as secondary muscles.

Use a rack such as a squat or power rack to hold the barbell. Place your feet shoulder width apart under the bar. Grasp the bar wider then shoulder width, duck your head under the bar and position it on your trapezius muscles behind your neck. Lift the bar from the rack and take a couple of steps back. Position your feet wider then shoulder width apart with your toes pointed forwards or just slightly out to the sides. Look forward.

Bend your legs and squat down with the bar across your upper back. Your knees should be directly over your toes as you do the movement. Squat down until your upper thighs are below parallel with the floor. Arch your back and straighten out your legs until you are standing upright. Repeat.
Lying Leg Curls

This movement isolates the hamstrings. This exercise is good for developing muscle detail in the backs of your legs.

Lie face down on the padded bench with your knees just over the edge of the bench. Hook your feet beneath the roller pads and grasp the handles at the sides of the machine for support.

Curl your legs and lift the weight up. Pause at the top for a second or two to enhance the peak contraction in the hamstrings. Lower the weight slowly to the starting position. Repeat.
Leg Extensions

This movement isolates the quadriceps. This exercise is good for developing muscle detail between the individual segments of your quadriceps muscles.

Sit on the leg extension machine (adjust the seat according to your body). Hook your feet beneath the roller pads and grasp the handles at the sides of the machine for support.

Straighten your legs and lift the weight up. Pause at the top for a second or two to enhance the peak contraction in the quads. Lower the weight slowly to the starting position. Repeat.
Seated Calf Raises

This exercise targets the soleus muscles because it is performed with your legs bent at a 90-degree angle. This exercise also works the gastrocnemius muscles as secondary muscles.

Adjust the knee pads of the machine so that you can sit with your knees snug to the pads. Place the balls of your feet on the foot block, with your feet about shoulder width apart, toes pointing forward.

Rise up as high as you can on your tippy toes. Hold this position for a second to enhance the peak contraction in the calves. Lower your heels until your calve muscles stretch down as far as possible. Hold the stretched position for a second. Repeat.
**Leg Raise**

This exercise works the frontal abdominal wall, particularly the lower half of the abdominals.

Position yourself on the leg raise station. (Note: if you do not have access to a leg raise station you can do this exercise hanging from a chin up bar). Support your bodyweight on your forearms. Keep your torso upright.

Raise your legs in a semicircular arc until your legs are parallel to the floor. Slowly lower back to the starting position. Repeat.

Tip - a less intense version of this exercise is to keep your knees bent at a 90-degree angle during the exercise.