Field experience at the K-State Riley County Research and Extension

by

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Abstract

In 1862, the Morrill Act granted federal support to states, in order to develop college curriculum that included agricultural instruction. Land-grant universities have a triadic mission, emphasizing teaching, research, and extension in order to make knowledge created through research available to the community. The 1914 Smith Lever Act created the Cooperative Extension service, with the purpose of disseminating information from the land-grant universities directly to the people. The agents that today work in these Cooperative Extension units are educators that act as an "extension" of the university, providing programs in agriculture and natural resources, community and economic development, family and consumer sciences, and 4-H youth development. Well-developed extension programs are led by qualifies staff members and serve a broad-based clientele, providing unbiased and up-to-date information, are responsive to local need and emergencies, are focused with well-defined areas of responsibility and supported by a long-term plan, and utilize resources efficiently. They also address the community's needs and reach many people and multiple audiences, having the support of community leaders and stakeholders.

Kansas State University is the oldest, coeducational land-grant university in the nation, and faculty members have been conducting research and extension activities since the 1860s. With the passage of the Smith-Lever Act in 1914, Kansas created its Cooperative Extension Service. With time, to simplify and make the tie between Cooperative Services and Kansas State University, its name was changed to K-State Research and Extension. The K-State Research and Extension has four Core Mission Areas: Youth, Family, and Community Development; Food, Nutrition, Health, and Safety; Natural Resources and Environmental Management; and Agricultural Industry Competitiveness. Their mission is to be dedicated to a safe, sustainable,

competitive food and fiber system and to strong, healthy communities, families, and youth through integrated research, analysis and education.

My field experience was spent within the K-State Riley County Research and Extension Office under the direction and supervision of the Family and Consumer Sciences agent, Virginia Barnard, MPH. I completed 240 hours onsite between May and September of 2017. For most of the time, my responsibility involved assisting the Family and Consumer Sciences agent with the "Stay Strong, Stay Healthy" training sessions, and creating supplemental material for the participants. I also worked closely with the 4-H Youth Development agent, that connected me to the 4-H Verde Clovers club, and together we organized a 3-day kidscamp. I also performed many other activities and developed other products.

Subject Keywords: Public Health, physical activity, exercise, nutrition, land-grant university, extension.

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Chapter 1 - Introduction

Land-grant University System

In 1862, the Morrill Act granted federal support to states, in order to develop college curriculum that included agricultural instruction. Over time, the state land-grant colleges and universities developed the ability to deliver practical instruction and services. In 1890, a second Morrill Act was passed, including previously excluded populations (Collins, 2015). Land-grant universities shifted the access from the privileged to the working class, transforming the curriculum from the liberal to the useful, and transformed theoretical knowledge into applied knowledge (Collins, 2015). Land-grant universities have a triadic mission, emphasizing teaching, research, and extension. The idea behind this model is to make the production of knowledge created through research available to the community.

Even though the beginning of the land-grant idea is not clearly attributed, the concept of a state university specialized in the education of common people through agricultural and mechanical sciences is often attributed to Jonathan Baldwin Turner of Illinois (Herren& Edwards, 2002). He believed that in order for a democratic government to work, it required educated citizens, however, only a section of the population had access to the universities of the day (Collins, 2015). Because he did not have sufficient political clout, Turner asked for Justin Morrill's support, a congressman from Vermont (Herren& Edwards, 2002). After failing several times, the Morrill Act was signed in to law on July 2, 1862 by President Abraham Lincoln. The second Morrill Act was passed in 1890 to provide access for African-Americans, and in 1994 the Elementary and Secondary Reauthorization Act was signed to provide access for Native Americans through community colleges on tribal reservations (Herren& Edwards, 2002). These legislative acts created the first component of the triadic mission: teaching.

After the passage of the first Morrill Act, land-grant universities were formed and faculty members started to teach agricultural sciences. Because little scientific knowledge related to agriculture was available at the time, this deficiency led to the creation of the Agricultural Experiment Station by the Hatch Act of 1887 in order to discover and disseminate scientific knowledge related to agriculture (Herren& Edwards, 2002). With the passage of the Hatch Act, the second component of the triadic model for the land-grant was placed: research.

Even though teaching and research were already in place, many people still did not have access to the teaching and research conducted at the land-grant universities (McDowell, 2001). The Smith Lever Act was passed in 1914, creating the Cooperative Extension service with the purpose of disseminating information from the land-grant universities (Herren& Edwards, 2002). The extension movement reflected the need to take the knowledge of the college and the research of the experiment stations directly to the people, where they were, to help them solve problems in their communities (Hightowe, 1973). This legislation completed the triadic model for land-grant universities, including teaching, research, and extension.

According to Berry (1977), the purpose of the land-grant university is to combine agriculture and education to preserve the land and the people. Today, the land-grant extension function maintains the highest levels of knowledge diffusion and outreach of any college type in existence (Collins, 2015). If the most important social benefit of higher education emerges from the creation and dissemination of the new knowledge, extension is the linkage between high education knowledge and dissemination.

The current status of teaching at land-grant universities is of some concern (Dean & Camp, 1998). Some organizations hold conferences and publish journals that improve instruction, which are examples of efforts to improve teaching (Roberts, 2003). A contributing

factor to the concern about teaching quality is the lack of pedagogical or andragogical coursework for degree completion of many doctoral programs, which may affect the ability to teach (Bryne, 2000). Also, even though this is not the case for all faculty members, many of them have overwhelming appointments that involve teaching, research, and extension, not having sufficient time to dedicate to teaching (Roberts, 2003). Another factor is that access to land-grant universities is increasingly difficult with strict admission standards that eliminate many students who must enroll in a community college for at least the first years and then transfer to a land-grant university or a non-land-grant university (Roberts, 2003). McDowell (2001) questioned if today's land-grant universities still meet their original intention of providing an education for the common person or if this role is now played by community colleges.

Land-grant universities have excelled in research. In 2001, 43 land-grant universities were included in the Carnegie Foundation's list of the top 125 research universities in the country (McDowell, 2001). However, much of the research conducted is guided by special interests, not towards the practical problems faced by agriculturalists in the state that the land-grant is supposed to serve (McDowell, 2001). Nevertheless, research from land-grant universities have shaped the agricultural industry and the country as a whole into the highly productive industry that it is today (Kellogg Commission, 1999). According to McDowell (2001), extension has had success in achieving its purpose of diffusing practical information to the community.

Cooperative Extension System

The Cooperative Extension System was created in 1914 with the passage of the Smith-Lever Act, which according to Rasmussen (1989) improved access to education, bringing land-grant university knowledge and resources to people where they lived and worked (Rasmussen, 1989). The Cooperative Extension System service was established to identify the problems and

needs of ordinary people, bring these problems and needs to the attention of researchers, and deliver non-formal education to solve these problems and needs (McDowell, 2001). The agents that today work in these Cooperative Extension units are educators that act as an "extension" of the university, providing programs in agriculture and natural resources, community and economic development, family and consumer sciences, and 4-H youth development (Franz & Townson, 2008).

Extension units have a complex and unique structure, with staffing and funding deriving from the U.S. Department of Agriculture, state government, county government, and revenue from grants, contracts, gifts, and fees (Franz, 2014). According to Franz & Townson (2008), budget and funding sources differ across county and state extension units. Each local extension unit is different, but most of them have a similar hierarchy that involves a director that oversees the management of the office, a group of highly trained educators, and a supporting staff that assists the unit's efforts (Terry & Osborne, 2015). Extension staff members are land-grant university employees working closely with regional and county staff members, such as educators, to plan, develop, implement, and evaluate educational programming (Franz, 2014). The paid staff broaden and deepen educational impact using thousands of volunteers, including but not limited to 4-H leaders, Master Gardeners, and advisory council members (Seevers, Graham, & Conklin, 2007).

According to Seevers et al. (2007), to fulfill the local extension unit role, the following duties and tasks must be performed by the local extension unit: (a) represent the land-grant institution in the county by delivering non-formal education that provides solutions to local concerns; (b) act as the liaison between local and state government; (c) facilitate the organization of local citizens to determine and deliver non-formal education; (d) develop collaborations and

partnerships with other organizations; (e) administer a public facility where local citizens can call, write, or visit for information; (f) stay well-informed regarding social and economic changes in the county; (g) remain up-to-date on subject matter expertise; (h) provide non-formal education through group presentations, one-on-one consultations, and mass media; (i) aid the communication between local needs and research; and (j) provide assessment of educational programs and communication of the same to local citizens (Seevers, Graham, & Conklin, 2007).

Historically, extension units have focused on topics associated with being an extension agent, such as program planning and evaluation (Harder, Mashburn& Benge, 2009). Through the development and implementation of programs, extension agents can educate the population in need, which include all residents in the state or area the land-grant university serves. Extension agents use four approaches to engage with the population: service, content transmission, facilitation, and transformative education (Franz, 2014). Extension agents also help to disseminate content including research-based knowledge across different topics for homeowners, businesses, agriculture procedures, and communities (Franz, 2014).

Cooperative Extension was the first formal nationwide structure created for university-community engagement (Franz, 2014), and it has become the largest nonformal education organization in the world (Franz, 2014). At the beginning, extension agents would take the traditional role of providing information to clients as university experts, and now this relationship takes the form of extension educators who are focused on creating and maintaining mutual learning environments with communities (Applebee, 2000). The role of extension in the community varies across the U.S. locally and on campuses, where the structural differences are shaped by funding, staffing, and program focus that is determined by engagement activities and clients (Franz, 2014). Traditionally, Extension conducts a community-university engagement

with rural communities, but extension activities also take place in all areas of the state with a wide variety of partners and topics (McDowell, 2001).

According to a study by Harder et al. (2013), communication between the parties that administer extension is needed to resolve problems associated with technology, facilities, and extension's human capital (Harder, Moore, Mazukewicz, & Benge, 2013), where federal, state, and local governments must work together as partners and contribute financially and with human resources, infrastructure, and other program support. For the biggest part of extension's history, programs were public funded and long-term sustained (Franz, 2014). However, as public funding has become more competitive, extension had to build strong relationships with community partners, and the engagement has become project-based (Franz, 2014). Rabin, Hildreth, and Miller (1996) suggested that without adequate financial resources, the other extension's responsibilities are irrelevant (Rabin, Hildreth, & Miller, 1996). The activities and programs developed by extension and their partners have the potential to contribute to economic, social, or environmental conditions for the communities where they are established, and resource expenditures reflect the priorities of the organization and its leaders (McDowell, 2001).

A literature review by Terry and Osborne (2015) suggested that the fundamental dimensions of exemplary local extension units could include: (a) adequate and consistent funding, (b) effective county office leadership, (c) facilities and infrastructure, (d) well-trained educators, (e) well-developed extension programs, and (f) organizational accountability (Ahearn et al., 2003; Linden, 2003; Rabin et al., 1996; Seevers et al., 2007; Thompson & Strickland, 2003). According to Carroll, Gross, and Leist (2003), an adequate and consistent funding source is necessary to support program staff, operations, and educational initiatives, allowing the creation of sustainable community-based programs. By formulating, developing, implementing,

and evaluating the extension's administration, the county office leadership coordinates the extension unit, being an essential part of exemplary local extension units (Radhakrishna et al., 1994). Facilities and infrastructure have an impact on faculty and staff, learning, and the community as well (Bitner, 1992; Roelofsen, 2002; Castaldi, 1994; Dejong, 1997; Tranter, 2005), influencing the employees productivity and satisfaction. According to Chizari, Karbasioun, and Lindner (1998), extension educators are the basic resource for a successful extension system (Charizi, Karbasioun, & Lindner, 1998), and they must be well-trained.

Well-developed extension programs are led by a good staff and proportionate to number of residents, serve a broad-based clientele and provide unbiased and up-to-date information, are responsive to local needs and emergencies, are focused with well-defined areas of responsibility and supported by a long-term plan, utilize resources efficiently, and do not duplicate other programs (Taylor-Powell, Douglah, &Stanek, 1995). High quality extension programs also are based on the community needs, are planned with the help of specialists, are technically accurate and based on research, take into consideration the community network and linkages, are delivered by many methods, are innovative and cost effective, reach many people and multiple audiences, and have strong support from the community leaders and stakeholders (Osborne, 1991). Finally, organizational accountability is the cornerstone of local extension units (Terry & Osborne, 2015), acting in accordance with the shared values of the people and stakeholders that comprise them (Stevenson, 1990).

According to Cooper and Graham (2001), extension agents and supervisors consider the following competency areas import in order to be successful in the Cooperative Extension area: faculty/staff relations; public relations; work habits; program planning, implementations and evaluation; personal skills; management responsibilities; and personal and professional

development (Cooper & Graham, 2001). Scheer et al. (2006) also found other competencies to be important, including program planning and development; program implementation and delivery; evaluation, applied research, and scholarship; communication skills; educational and information technology; facilitative leadership; diversity and multiculturalism; marketing and quality service; external linkages; and professionalism and career development (Scheer et al., 2006).

K-State Research and Extension

Kansas State University is the oldest, coeducational land-grant university in the nation, and faculty members have been conducting research and extension activities since the 1860s. After the U.S. government passed the Hatch Act in 1887, Kansas created its Agricultural Experiment Station in 1888. With the passage of the Smith-Lever Act in 1914, Kansas created its Cooperative Extension Service. Both entities were funded by state, county, and federal dollars (Agricultural Experiment Station and Cooperative Extension Service, 1998). The 1995 Legislature suggested a study about the Kansas State University Agricultural Experiment Station and the KSU Cooperative Service, and researchers discovered that people valued information that is backed by research, and extension information was viewed as research-based, unbiased, and reliable (Agricultural Experiment Station and Cooperative Extension Service, 1998). Many people were not sure where to find the Agricultural Experiment Station and the KSU Cooperative Service. Some communication difficulties between the two organizations were also discovered, and people from the community did not distinguish how the two groups differed (Agricultural Experiment Station and Cooperative Extension Service, 1998).

To simplify these questions and make the tie to the host university clear, the official names of the two organizations were changed to Kansas State University Agricultural

Experiment Station and Cooperative Extension Service, or simply K-State Research and Extension. Four Core Mission Areas were identified as areas of most importance to the extension unit's clients, and they were included in the unified Five-Year Work Plan. The four areas were (a) Youth, Family, and Community Development; (b) Food, Nutrition, Health, and Safety; (c) Natural Resources and Environmental Management; and (d) Agricultural Industry Competitiveness (Agricultural Experiment Station and Cooperative Extension Service, 1998). To create the Work Plan, surveys were conducted and input meetings with clientele statewide were held, and the employees were asked for their ideas. The end result was a series of Issues, Vision Statements, and Anticipated Outcomes under each of the Four Core Mission Areas.

The mission of the K-State Research and Extension was then created: they are "dedicated to a safe and sustainable food and fiber system and to strong, healthy communities, families and youth through integrated research, analysis, and education", and since then it changed minimally to "dedicated to a safe, sustainable, competitive food and fiber system and to strong, healthy communities, families, and youth through integrated research, analysis and education".Their vision statement is to be committed to expanding human capacity by delivering educational programs and technical information that result in improved leadership skills in the areas of communication, group dynamics, conflict resolution, issue analysis, and strategic planning that can enhance the economic viability and quality of life in communities. K-State Research and Extension is the state's largest non-classroom educational system, providing knowledge for life to families, individuals, youth, farmers, community organizations, institutions, schools, people with limited resources, gardeners, businesses, communities, and agencies (K-State Research and Extension, 2017). Their agents provide extended educational information through office, field, and home consultations; demonstrations; school enrichment; 4-H organizations; Master

Gardeners; organized groups; public meetings; leadership training; events; newsletters; correspondence courses; newspaper articles; phone calls; and publications (K-State Research and Extension, 2017). K-State Research and Extension agents make a difference in the community by focusing on addressing the five grand challenges: global food systems, water, health, developing tomorrow's leaders, and community vitality (K-State Research and Extension, 2017). These five grand challenges were identified during a strategic planning process with K-State Research and Extension stakeholders.

Global Food System

The Kansas economy is driven by agriculture, which is the state's largest employer. One in five Kansans work in a job related to agriculture and food production. The agricultural industry contributed 43% of the state's gross regional product in 2015. The Global Food Systems include food safety, veterinary feed directive, wheat variety selection, and the agriculture economy. K-State Research and Extension helps entrepreneurs develop products safely under current regulations; develop new crops varieties that suit the Kansas climate and meet domestic and international consumer demand; reduce food loss caused by insects, poor storage, and processing techniques; identify ways to maintain cattle rangeland threatened by climate variations; lead national and international teams to solve global food issues; help families stretch their food dollars; and answer questions about the farm bill (K-State Research and Extension, 2017).

The economic and societal impact of foodborne illness can be extreme. K-State Research and Extension works to prevent these illnesses by teaching safe food handling practices to food service outlets and community organizations. Extension Family and Consumer Sciences partners with organizations such as the Kansas Restaurant and Hospital Association to provide food

safety training. In 2016, manager classes reached more than 579 food service workers statewide, resulting in 420 food service employees receiving certification, and 614 participants completing the ServSafe Food Handler class (K-State Research and Extension, 2017).

Water

To ensure future generations have a reliable source of clean water, K-State Research and Extension partners with state and federal agencies, and other land-grant universities to prolong the life of the Ogallala Aquifer and limit sedimentation into reservoirs used for drinking water. They work on breeding new drought-tolerant crop varieties that can be used for human and pet food, livestock feed and fuel; developing more efficient irrigation and water-monitoring systems for home and farm use; reducing runoff and sedimentation into reservoirs; improving livestock genetics to increase feeding efficiency, which reduces feed and water needs; working with the State of Kansas and partnering with stakeholders to develop a new 50-year water plan (K-State Research and Extension, 2017).

K-State Research and Extension focus on horticulture (promoting proper plant selection, smart irrigation strategies, soil testing to manage nutrient applications, and management practices to reduce organic debris reaching water sources) and watershed enhancement (K-State Research and Extension, 2017).

Health

K-State Research and Extension programs promote behaviors that improve quality of life, healthy development, and health behaviors across life stages for all socioeconomic groups. Improving eating habits, controlling portions, and increasing physical activity can help prevent health issues, such as diabetes (K-State Research and Extension, 2017). They help to identity and implement practices to help prevent adult and childhood obesity; provide options to help families

and practitioners understand health-care choices for elderly Kansans; educate consumers on safe food handling with food preparations, food preservation, food service, and more; and share unbiased information about national changes in health insurance requirements (K-State Research and Extension, 2017).

"Stay Strong, Stay Healthy" is an example of successful health program delivered by the K-State Research and Extension certified agents. This eight-week exercise program for older adults is designed to improve health and quality of life through strength training. Program benefits include increased muscle mass and strength, rotation of balance and flexibility, and improved bone density and decreased arthritis pain (K-State Research and Extension, 2017).Other programs are also offered, including Walk Kansas, Know the 10 signs of Alzheimer's, and Nutrition education for limited resources families.

Developing tomorrow's leaders

The complex global society of the future will require leaders with effective teamwork and communication skills. Preparing leaders of all ages will help them to contribute to a vibrant Kansas economy and quality of life. K-State Research and Extension established a national model for bringing ethnically diverse families to 4-H; meet the needs of military youth and their families at Kansas military installations and families of deployed members of the National Guard and Army Reserve; train Kansans of all ages to be better citizens and leaders; and add value to the economy. Accordingly, 4-H members are twice as likely to attend college and pursue careers in science, engineering, and computer technology (K-State Research and Extension, 2017).

More than 77,620 youth participate in the Kansas 4-H Development program annually (K-State Research and Extension, 2017). In 2016, Kansas 4-H conducted a study to determine the program's effectiveness, and found that 96% of the participants reported working

successfully with adults and having caring friends, 95% reported being comfortable with making their own decisions, 91% had a plan for reaching their goals, 94% reported they gained important skills by serving their communities, and 97% reported a strong desire to help others (K-State Research and Extension, 2017). K-State Research and Extension also offers Master Volunteer Programs, and the Building Better Boards program.

Community vitality

Rural, suburban, and urban communities throughout Kansas face many challenges. Combining their experiences and skills, citizens can help each other. K-State Research and Extension draw together community groups and share expertise from Kansas State University bypartnering with local communities, training Extension Master Gardeners, and working directly with farmers, ranchers, and families to develop better financial management practices (K-State Research and Extension, 2017).K-State Research and Extension offers the Senior Health Insurance Counseling for Kansas (SHICK) educational program, the Extension's life skills education work to reduce poverty educational program, the Building community PRIDE program, and the 48 hours of 4-H program (K-State Research and Extension, 2017).

K-State Riley County Research and Extension offers useful information related to agriculture, home economics, youth development, family life, business and economics, health living, and other topics, taking their extension programs to schools, gardens, community centers, and other places. Their philosophy is to help people help themselves by taking university knowledge to where people live, work, play, develop, and lead. They work at being responsive to the needs of the people by focusing their resources on providing quality information, education and problem-solving programs for real concerns. Their staff is formed by Jennifer Wilson as the County Extension Director, John Jobe as the 4-H Agent, Gregg Eyestone as the Horticulture

Agent, Greg McClure as the Agriculture Agent, and Megan Dougherty who recently replaced Virginia Barnard as the Family and Consumer Sciences Agent.

Chapter 2 - Field Experience Scope of Work

My field experience was spent within the K-State Riley County Research and Extension Office under the direction and supervision of the Family and Consumer Sciences agent, Virginia Barnard, MPH. I completed 240 hours onsite between May 2017 and September 2017. The scope of work that was anticipated during my time with the K-State Riley County Research and Extension Office was to assist specifically with the following:

- 4-H Verde Clovers club: providing activities for day camp;
- "Stay Strong, Stay Healthy" program: developing supplemental materials to support participants; and
- Tobacco free marketing: building support for the campaign

For most of the time, my responsibilities at the K-State Riley County Research and Extension Office involved assisting the Family and Consumer Sciences agent with the "Stay Strong, Stay Healthy" training sessions, and creating supplemental materials for the participants. I also worked close to the 4-H Youth Development agent, who connected me to the 4-H Verde Clovers club, and together we organized a 3-day camp for the kids. Due to unfortunate and unanticipated circumstances, I was not able to assist with activities to help the development and marketing of the tobacco free program in local parks. However, I was able to supplement this by being involved in a variety of other activities that were not listed as anticipated activities such as the 2017 Riley County 4-H Fashion Revue; teaching specific steps of food safety during food preparation to the 4-H Verde Clovers club participants and their parents; the 2017 Riley County Fair; distributing a food survey for the Flint Hills Wellness Coalition during an "Everybody Counts" event at the Douglass Community Recreation Center, later translating the survey from English to Spanish to make it accessible to the Spanish-speaking community; and mailing

practical information about nutrition and physical activity to participants of the Women, Infants, and Children (WIC) program. These additional activities allowed me to have a complete experience working with the K-State Research and Extension agents.

Stay Strong, Stay Healthy

"Stay Strong, Stay Healthy" is an evidence based eight-week exercise program for older adults developed by the University of Missouri that meets the recommendation for muscle-strengthening activities on 2 or more days a week that work all major muscle groups. The program's goal is to improve the health and quality of life of the participants. To do so, the program offers hour long strengthening exercise sessions that meet twice a week. After attending a Strong Women Stay Young training presented by Miriam Nelson of Tufts University in 2004, a team of the University of Missouri Extension faculty members wanted to adapt the Strong Women program to focus on older adults, both men and women. With the collaboration of Miriam Nelson, the University of Missouri Extension created "Stay Strong, Stay Healthy" and piloted it in Spring 2005 (Mills-Gray & Peterson, 2017).

In 1995, the Centers for Disease Control and Prevention (CDC) and the American College of Sports Medicine (ACSM) published that "Every US adult should accumulate 30 minutes or more of moderate-intensity physical activity on most, preferably all, days of the week" (Pate at al., 1995). In accordance with Nelson et al. (2007), the updated recommendation for physical activity is more inclusive and provides recommendations for moderate-intensity aerobic intensity, vigorous-intensity aerobic activity, and muscle-strengthening activity, including a separate recommendation for older adults (men and women age 65 or greater, and adults age 50 to 64 with clinically significant chronic conditions and/or functional limitations). This differentiation between adults and older adults was important because older Americans are

the least physically active of any age group and generate the highest expenditures for medical care (CDC, 2003). Older adults have been the most rapidly growing age group in the U.S. (Nelson et al., 2007), and the feasibility of attaining higher levels of physical activity in this population is encouraging (CDC, 2004). According to Martinson et al. (2003), increasing levels of activity in older adults could reduce medical expenditures within a year or so of the onset of behavior change.

In 2008, the U.S. Department of Health and Human Services released new federal guidelines for physical activity based on the most up-to-date scientific evidence regarding the health benefits of a physically active lifestyle (U.S. Department of Health and Human Services, 2008). The 2008 Physical Activity Guidelines for Americans (U.S. Department of health and Human Services, 2008) are the first comprehensive guidelines on physical activity issued by the Federal government, and are based on the report of a group comprising 13 leading experts in the field of exercise science and public health. The Guidelines comprise recommendations for children and adolescents, adults, and older adults.

In accordance with the 2008 Physical Activity Guidelines for Americans (U.S. Department of health and Human Services, 2008), children and adolescents should do 60 minutes or more of physical activity daily, and most of the 60 or more minutes a day should be either moderate- or vigorous-intensity aerobic physical activity, including vigorous-intensity physical activity at least 3 days a week. As part of their 60 or more minutes of daily physical activity, children and adolescents should also include muscle-strengthening physical activity and bone-strengthening physical activity on at least 3 days of the week(U.S. Department of health and Human Services, 2008).Adults should do at least 150 minutes a week of moderate-intensity, 75 minutes a week of vigorous-intensity aerobic activity, or an equivalence combination of

moderate- and vigorous-intensity aerobic activity for substantial health benefits(U.S. Department of health and Human Services, 2008). Adults also should do muscle-strengthening activities that are moderate- or high-intensity and involve all major muscle groups on 2 or more days a week, as these activities provide additional health benefits(U.S. Department of health and Human Services, 2008).

As stated by the American College Sports Medicine(ACSM) and the American Heart Association (AHA), "regular physical activity, including aerobic activity and muscle-strengthening activity, is essential for healthy aging. The preventive recommendation specifies how older adults, by engaging in each recommended type of physical activity, can reduce the risk of chronic disease, premature mortality, functional limitations, and disability". For aerobic activity, older adults are encouraged to engage in moderate-intensity aerobic physical activity for a minimum 150 minutes per week or vigorous-intensity aerobic activity for a minimum of 75 minutes per week, in at least 10-minute bouts (U.S. Department of Health and Human Services, 2008). In addition, combinations of moderate- and vigorous-intensity activity can be performed to meet this recommendation (U.S. Department of Health and Human Services, 2008). The recommended amount of aerobic activity is in addition to routine activities of daily living of light-intensity, or moderate-intensity activities lasting less than 10 minutes in duration (U.S. Department of Health and Human Services, 2008).

For muscle-strengthening activity, older adults are encouraged to engage in activities that maintain or increase muscular strength and endurance for a minimum of two days each week, being recommended to perform 8-10 exercises on two or more nonconsecutive days per week using the major muscle groups (U.S. Department of Health and Human Services, 2008). To maximize strength development, resistance should be used to allow 10-12 repetitions for each

exercise (U.S. Department of Health and Human Services, 2008). The recommendation also talks about flexibility activity and balance exercise. To maintain the flexibility necessary for regular physical activity and daily life, older adults should perform activities that maintain or increase flexibility on at least two days each week for at least 10 min each day (U.S. Department of Health and Human Services, 2008). To reduce risk of injury from falls, older adults should also perform exercises that maintain or improve balance (U.S. Department of health and Human Services, 2008)."Stay Strong, Stay Healthy" makes the effort of helping older adults meet these recommendations, especially the strengthening part of the Guidelines, which is often the hardest part to be accomplished.

After the location and date for the beginning of a "Stay Strong, Stay Healthy" sessions are confirmed, those who are interested in participating must go through the registration process before starting the exercise program. The goals of registering participants are to collect the names and contact information of interested individuals, collect local course fee, and provide interested individuals with program and course- specific information. Participants are instructed about class days and time, dates of orientations and course start and end dates, location-specific information, appropriate dress and shoe recommendations.

The “Stay Strong, Stay Healthy” sessions include warm-up exercises, strengthening exercises with or without weights, and cool-down stretches. Participants are also encouraged to do the exercises on their own once more during the week. Over the eight weeks, participants learn the exercises and begin to improve strength and balance. After eight weeks, participants are encouraged to continue this program at home or with a community group. The Physical Activity Readiness Questionnaire (PAR-Q) Screening Sheet is also used at this point to collect necessary

information that helps the instructor to screen individuals for safe exercise purposes, identifying potential participants who need a physician's authorization to participate in a course.

Exercises are completed in a sturdy, armless chair or standing behind the chair for balance. When weights are used, hand weights and adjustable ankle weights are provided for use during each class. Instruction is provided by a trained and certified K-State Research and Extension agent. The K-State Research and Extension unit provides the facility that is used.

The program also seeks to improve muscle mass through safe and incremental progression of muscular challenge. Participants are encouraged to safely challenge themselves. Individuals will likely experience sensations of muscle fatigue during the strengthening exercises and muscle stretching sensations during the stretching exercises. Participants may experience muscle soreness between classes for one or two days. This program is safe and any participant who experiences sharp, persistent, shooting or prolonged pain should consult their care provider and stop exercising.

Despite compelling research about the benefits of muscle-strengthening exercise, the majority of older adults do not currently engage in such exercises, which may be explained by the fear of injury, no previous experience, lack of access to a professional or to a place to engage in such activity, the cost of fitness centers, and lack of knowledge about the importance of muscle-strengthening exercises (K-State Research and Extension, 2017). The “Stay Strong, Stay Healthy” program addresses these problems by providing a safe and welcoming environment, where older adults can exercise in groups and have access to professional instruction.

According to the K-State Research and Extension (2017), between 2016 and 2017, K-State Research and Extension agents, who are certified instructors, provided 48 “Stay Strong, Stay Healthy” courses totaling more than 768 classes reaching 647 participants. Two “Stay

Strong, Stay Healthy" Level 1 certification trainings were held resulting in 22 additional certified instructors. One "Stay Strong, Stay Healthy" Level 2 certification training resulted in 17 certified instructors. Fifty-five "Stay Strong, Stay Healthy" certified instructors maintain current CPR first aid certification and participated in instructor updates to maintain required certification.

A pre- and post-assessment was conducted on each participant that assessed agility, balance, upper and lower body flexibility, and strength. Results from 467 participants indicated that they improved or maintained on the following skills: 91.5% of the participants had improvements on the chair stand (lower body strength) test; 92.7% of the participants improved their 8 foot up and go (agility and dynamic balance) results; 85.2% of the participants showed improvements on the sit-and-reach (lower body flexibility) test; 76.6% of the participants improved their performance on the back scratch (upper body flexibility) test; and finally 76.9% of the participants improvedin balance (K-State Research and Extension, 2017).

Even though strengthening training is not enough, in accordance with Nelson et al. (2007), with sufficient skill, experience, fitness, and training, older adults can achieve high levels of physical activity. Health professionals should encourage older adults to reduce sedentary behaviors, because even older adults who do less activity than recommended still achieve some health benefits (Nelson et al., 2007) such as decreased risks of cardiovascular disease (Manson et al, 2002). Among the different types of exercise, performing muscle-strengthening activities is particularly important in older adults, given the role in preventing age related loss of muscle mass (Tseng, Marsh, Hamilton, & Booth, 1995), bone (Nelson et al., 2004), and its beneficial effects on functional limitations (Kesaniemi et al., 2001; Keysor, 2003; Latham et al., 2003). The effects of muscle-strengthening activities on functional limitations is important because in accordance with Sheapard (1997), by the year 2030 approximately 30% of the American

population will be part of the older adult population and potentially experience some loss of function. A research review by Hunter et al (2004) about the effects of resistance training for strength, power, muscle mass, ease of physical activity, and free living physical activity in the elderly found that resistance training increases muscle mass, strength and power, reduces the difficulty of performing daily tasks, enhances energy expenditure and body composition, and promotes participation in spontaneous physical activity apart from regimented exercise training.

A three-month follow-up survey of "Stay Strong, Stay Healthy" participants indicated they continued to exercise one or two times a week (K-State Research and Extension, 2017). Based on a 2015 CDC report, the average hospital cost of a fall injury is well over $30,000. This evidenced-based program also prevents falls while improving health and quality of life for participants.

As part of my field experience, I was tasked with assisting the "Stay Strong, Stay Healthy" sessions, collecting the pre- and post-assessment data, and helping the participants during the exercises, correcting their form as needed. I had the opportunity to assist both Level 1 and Level 2 exercise groups, totaling 10 participants (5 participants in each level). The sessions were delivered in a conference room, in the same building where the K-State Research and Extension Office is located.Furthermore, I created a supplemental materials with extra exercises in order to give the participants other possibilities and options to exercise outside the program or after the eight-week period.

In order to give the participants tools needed to maintain their physical activity level after the eight-week program, the "Stay Strong, Stay Healthy" instructor and I decided to briefly introduce some behavior change activities, encouraging the participants to put these activities into practice. Adoption and maintenance of healthy behaviors requires individuals to engage in

goal-directed behaviors, have self-regulation skills, effectively solve problems, and also inhibit unhealthy behaviors (McAuley et al., 2012). When it comes to adopting and maintaining exercise habits as an older adult, there are a number of barriers that may affect their capability to do so. According to Bethancourt et al. (2014), older adults become conscious of their age-related physical limitations, which may radiate to lack of confidence in their abilities, uncertainty about what activities are safe and which are not, and fear of injury, pain, or prolonged recovery. This population also hassimilar barriers to the rest of the population, such as lack of professional guidance, feeling unaccustomed to exercise, and lack of motivation (Bethancourt, 2014).

Goal setting, action planning, and coping planning were the behavior change activities chosen in order to potentially increase the participants' self-efficacy, motivation, and self-regulation skills, therefore increasing their chance of adhering to physical activity during and after the program. The decision of targeting these variables was based on the Social Cognitive Theory (SCT), which is widely used for understanding and researching behavior change. According to Bandura (2004), the SCT makes the assumption that human behavior is determined by the interactions between behavior, personal factors, and environment, suggesting that behavior changes arise from changes in motivation and self-regulation. The core construct of the SCT is self-efficacy (confidence in one’s capabilities to execute a specific course of action)(Bandura, 1997), and according to McAuley and Blissmer (2000), self-efficacy is one of the most consistent determinants of health behaviors, such as physical activity, being considered the active agent in the behavior change process. Self-regulation is the guiding of one’s own actions by setting personal goals and planning courses of action to achieve them (Bandura, 1998). Possessing self-regulatory skills is essential for maintaining a complex behavior such as physical activity (Bandura, 1998). Self-regulatory strategies such as planning, operating within

the SCT framework, may have direct and indirect effects on health behavior (Bandura, 1986). Adherence to structured exercise programs is consistently associated with higher exercise self-efficacy (McAuley&Blissmer, 2000).

Throughout the program, many participants shared with us their personal experiences using the supplemental materials, going for walks during lunch break, or putting into practice the behavior change activities and setting physical activity goals for the week in order to regulate their behavior. One of the participants put her copy of the supplemental materials in her office and would exercise throughout the day when she needed a break from work. Even though these are limited examples of how the applied activities positively impacted the participants' lives and lifestyle choices, teaching them ways to avoid physical inactivity was important. According to the CDC (2016), some physical activity is better than none, and any amount of physical activity supplies in some health benefits, even when not meeting guidelines.

4-H Verde Clovers Club

4-H is an opportunity for youth ages 7-19 to learn more about their community (citizenship); be a role model and teach others (leadership); and explore interest areas that will offer ongoing learning (life skills). According to K-State Research and Extension, through 4-H's educational mission, they help youth to learn by doing. 4-H is also a network of families, helping their youth to learn life skills and to reach their full potential in becoming engaged adults who make valuable social and economic contribution in their communities.

There are 12 Riley County 4-H clubs, including the 4-H Verde Clovers, club that I had the opportunity to work closely with.The 4-H Verde Clovers club started during the Fall semester of 2016, with the goal of reaching a new audience and creating a multicultural club. The creation of a new club was possible through a $1,000 grant from the Kansas 4-H

Foundation, and thanks to the work of Priscila Aguero, an intern for the K-State Riley County Research and Extension Office at the time, and other volunteers such as AliahMestrovich Seay, 4-H Youth Development Specialist and 4-H Verde Clovers lead volunteer. During her internship, Priscila Aguero focused on providing services to non-traditional 4-H families, such as the Hispanic community, and helping with youth development through the 4-H program. During the Spring of 2017, the Verde Clovers had become an official 4-H club. The 4-H Verde Clovers club members are committed to the following principles: "Salud, Saber, Sentir y Vivir" or "Head, Heart, Hands, and Health". After starting with 10-15 youth, the 4-H Verde Clovers club today has more than 25 youth participating, and each monthly meeting has between 40-50 participants, including club members, volunteers, mentors, community members, and family members. Having many people involved with the club and coordinating activities creates a large and strong community support network, and makes the club a sustainable project.

Because this specific club is open to youth and families that want to learn about multicultural positive youth development, it looked like the perfect opportunity for me to interact with them and share my multicultural experiences being born and raised in Brazil, but I also have lived and worked in Spanish-speaking countries such as Peru and the Dominican Republic. I had the chance to interact with the club members, their families, and the volunteers that work with them. During my field experience, we visited the Kickapoo Tribe in Horton, Kansas, with some of the 4-H Verde Clovers club members and volunteers. The Kickapoo Tribe consists of 1,600 enrolled members and has been present in Kansas since the 1832 Treaty of Castor Hill where the Kickapoo lived near the Missouri River (Kansas Kickapoo Tribe). During our visit, we got the opportunity to know more about the Kickapoo Tribal programs, especially those targeting the youth. The Tribe has a diverse workforce made up of over one hundred professionals and

technical staff members that offer a variety of programs such as “Child Care & NEW Program”, “Community Health Representative Program”, “Kickapoo Education Program”, and activities related to health and wellness (Kansas Kickapoo Tribe). The visit gave the 4-H Verde Clovers club members the opportunity to experience a different reality and learn about a different culture.

In conjunction with the Family and Consumer Sciences agent, the 4-H Youth Development agent, and the 4-H Youth Development intern at the time, we planned and organized a 3-day 4-H Verde Clovers camp. The idea of creating some kind of summer activity directed to the 4-H Verde Clovers club members came from conversations with their parents and with volunteers. During the summer break, the majority of the Verde Clovers members would stay at home most of the day, having less opportunities to engage in activities that are fun and also give them the opportunity to learn new things by doing than during the academic year. From July 19th to 21th, the youth members of the 4-H Verde Clovers club had the opportunity to visit different places such as Civic Plus, Meadowlark Hills, KSU Insect Zoo, and Vanier Football Complex, being exposed to a variety of experiences, and learning from different types of professional about what they do. The camp also involved many science, technology, engineering, and math (STEM), physical activity, and nutrition activities. Participants were always encouraged to work together, learn with other members, and share their knowledge. The 3-day 4-H Verde Clovers camp gave the members the opportunity to learn more about different aspects of their community (exercising their citizenship), be a role model and teach others (exercising their leadership), and also to explore interest areas that will offer ongoing learning (exercising their life skills).

Chapter 3 - Learning Objectives

The learning objectives were agreed upon prior to beginning my contact hours of the field experience. The objectives were developed to ensure I received the best possible learning experience and K-State Riley County Research and Extension knew what to expect of my time. The original learning objectives developed with my preceptor, Virginia Barnard, included the following:

- To understand the community needs, and how K-State Riley County Research and Extension addresses those needs, especially with physical activity and tobacco free programs and policies
- To understand the U.S. social system and how it impacts underserved populations
- To advocate for environmental system changes (tobacco free parks program)

The first objective was fulfilled through the time spent in the K-State Riley County Research and Extension Office and with the agents. Experiencing their daily activities and responsibilities, the way they were needed by the community and how they would address their needs and questions was truly a great learning experience. Each agent gave me the opportunity to ask them questions about their job, and to see how they would interact with the community. On a daily basis I experienced people calling and going to the office, looking for information about food safety, health care, exercise program availability, and agriculture, among other subjects. Being part of the 2017 Riley County Fair was also an indescribable experience. It gave me the opportunity to experience a county fair for the first time, and also exposed me to a different reality than my own as a big city girl. During the 2017 Riley County Fair I was responsible for a booth that had some useful information on health, nutrition, physical activity, and food safety. The booth gave me the opportunity to interact directly with community members that were

visiting the Riley County Fair, answering their questions and helping them to find the best way to address their needs.

Objective two was completed through the field experience as a whole and simply by being exposed to county level health-related day-to-day activities and conversations, especially when it came to nutrition, physical activity, and healthcare. The U.S. social system can negatively impact underserved populations, creating disparities in health. There are many dimensions of disparities in the U.S., particularly in health (Healthy People 2020). Race, sex, sexual identity, age, disability, socioeconomic status, and geographic location all impact an individual's ability to be healthy (Healthy People 2020). In 2008, the U.S. population was estimated at 304 million people (U.S. Census Bureau, 2008): 33% of them identified themselves as belonging to a ethnic minority population (U.S. Census Bureau, 2008), 51% of them were women (U.S. Census Bureau, 2008), 12% were people not living in nursing homes or other residential care facilities and had a disability (U.S. Census Bureau, 2008), and 23% of them lived in rural areas (U.S. Census Bureau., 2008). In accordance with the U.S. Department of Health and Human Services, health disparities negatively affect groups of people who have systematically experienced greater obstacles to health based on their ethnic group; socioeconomic status; gender; age; mental health; cognitive, sensory, or physical disability; sexual orientation or gender identity; geographic location; or other characteristics historically linked to discrimination or exclusion. During the process of assessing the needs of the Riley County community, many of the interviewees that noted that community growth brought disparities - that those who had the fewest resources and protections were actually receiving less (Gregory, Coleman, & Jolley, 2015), which makes the gap between those who are secure and/or benefitting from growth and those who are marginalized already even bigger. As Riley County

grows, non-English speakers, those with disabilities or mental illness, and people with low income, among others, have a sense of being forgotten or pushed aside and being invisible (Gregory, Coleman, & Jolley, 2015). This “invisible” population faces issues with housing, transportation, and access to necessary health and mental health services that are greater than the decreasing funding for such needs (Gregory, Coleman, & Jolley, 2015). According to the 2015 Community Needs Assessment for Riley County, persons in the military and students are also part of the “invisible” population (Gregory, Coleman, & Jolley, 2015). Bringing research-based information and offering programs and services for the “invisible” population , K-State Research and Extension makes the effort, with other entities such the Riley County Health Department, to eliminate disparities and achieve health equity among the Riley County population.

Due to unexpected circumstances, I was not able to complete the third learning objective. When the Family and Consumer Sciences agent at the time and my preceptor, Virginia Barnard, had to leave her position, the tobacco free parks program was handled by others. Smokingleads to many diseases and disabilities, and harms nearly every organ of the body (U.S. Department of Health and Human Services, 2014). Smoking's negative health effects cost the U.S. billions of dollars each year on cigarette advertising and promotions (Federal Trade Commission, 2017). According to the Campaign for Tobacco-Free Kids (2017), 15.1% of all adults in the U.S. were cigarette smokers in 2015. According to the U.S. Department of Health and Human Services (2009), more than 80% of adult smokers begin smoking before age 18, and each day in the U.S. more than 3,000 young people (ages 12-17) smoke their first cigarette (U.S. Department of Health and Human Services, 2011). Nicotine is nine times more addictive than alcohol and

addictive in similar ways as heroin and cocaine (U.S. Department of Health and Human Services, 2011).

According to the Pennsylvania Department of Health (2016), cigarette butts are the most littered item in the world. Discarded cigarettes and other forms of tobacco are toxic and hazardous to the environment, costing money to cleanup (Pennsylvania Department of Health, 2016). Smoking is an unhealthy behavior, and tobacco waste is a toxic pollutant that takes decades to decompose (Pennsylvania Department of Health, 2016), making parks and playgrounds look dirty and uninviting. Children and animals are at risk for swallowing, choking,or burning themselves with discarded butts and poisoning themselves with the drug nicotine (Pennsylvania Department of Health, 2016). For these reasons, tobacco free parks should be the goal for every place, providing the community with clean and healthy places to exercise, play, and enjoy nature. Tobacco free policies are public park policies, similar to policies that prohibit alcohol use, and are largely self-enforcing. Important parts of tobacco free policy include posting adequate signage, providing an opportunity to the community to be educated about the policy and allowing individuals to handle tobacco use at these facilities (Pennsylvania Department of Health, 2016).

Activities Performed

The anticipated activities to be performed during my field experience were:

- Developing and delivering a day camp for the 4-H Verde Clovers club
- Developing supplemental material to support “Stay Strong, Stay Healthy” participants
- Assisting with activities to help develop and market the tobacco free program in local parks

Due to unfortunate and unanticipated circumstances, I was not able to assist with activities to help the development and marketing of the tobacco free program in local parks. However, I was able to supplement this by being involved in a variety of other activities that were not listed as anticipated activities such:

- the 2017 Riley County 4-H Fashion Revue - assisting the event organization;
- teaching specific steps of food safety during food preparation to the 4-H Verde Clovers club members and their parents;
- the 2017 Riley County Fair - organizing a "health booth" with information about nutrition, physical activity, and food safety;
- distributing the Riley County Food Survey for the Flint Hills Wellness Coalition during a "Everybody Counts" event at the Douglass Community Recreation Center;
- translating the Riley County Food Survey from English to Spanish, making it accessible to the Spanish-speaking community; and
- mailing practical information about nutrition and physical activity to participants of the Women, Infants, and Children (WIC) program.

Products Developed

Supplemental material - Extra exercises

The supplemental material involved a variety of strengthening, balance, and mobility exercises based mainly on the "Stay Strong, Stay Healthy" exercises, but also taking into consideration the exercises from the "Go4Life" program, from the National Institute on Aging at National Institutes of Health. Level 1 and level 2 participants received a different list of extra exercises, according to their current "Stay Strong, Stay Healthy" level. The selected list of exercises was previously discussed and approved with the "Stay Strong, Stay Healthy" instructor.

During the last session of each week, two new extra exercises were introduced and explained to the participants. Theyreceived written instructions with the name of the exercise, an image of the exercise being performed, and an explanation of how to correctly perform the movement step-by-step. Along with the written instructions, participants would also receive a demonstration of how to perform the exercise, and tips on how they could modify the exercise to make it easier or harder, if a modification was needed. Before leaving at the end of the session, they would also have the opportunity to practice the exercise, so they could learn and also feel comfortable doing the exercises on their own.

- Extra exercises - "Stay Strong, Stay Healthy" Level 1

Table 1 displays nine muscle-strengthening exercises targeting major muscle groups, and the everyday activities that are made easier when the targeted muscles are stronger due to exercise.Each exercises is further explained in Appendix A.

Table 1. EXTRA EXERCISES - "STAY STRONG, STAY HEALTHY" LEVEL 1

EXERCISES	EVERYDAY ACTIVITIES MADE EASIER
WALL SQUAT	Moving to and from chairs, toilet, bed and car
SEATED HEEL RAISES	Walking up stairs or hills, walking on unstable ground, maintaining and regaining balance, reaching for things above head height
SIDE ARM RAISES	Putting household items into and taking them down from high cabinets, combing hair, getting dressed and undressed
FRONT ARM RAISE	Putting household items into and taking them down from high cabinets, combing hair, getting dressed and undressed

WALL PUSH-UP	Pushing yourself out of a chair or up off the ground, pushing a lawn mower, grocery cart or opening a door
SEATED ABS	Moving from chairs, toilet, bed and car, helping with balance and good posture
SEATED BODY ROTATION	Putting seat belt on, reaching for things above head height, helping with balance and good posture
SEATED ELBOW-TO-KNEE	Improving balance and good posture, putting on and removing shoes
SEATED BACK/HIPS EXTENSION	Cleaning or walking, lifting groceries and boxes from lower levels, bend over to tie shoes

- Extra exercises - "Stay Strong, Stay Healthy" Level 2

Table 2 displays ten muscle-strengthening exercises targeting major muscle groups, and the everyday activities that are made easier when the targeted muscles are stronger due to exercise.Each exercises is further explained in Appendix B.

Table 2. EXTRA EXERCISES - "STAY STRONG, STAY HEALTHY" LEVEL 2

EXERCISES	EVERYDAY ACTIVITIES MADE EASIER
SQUAT HOLD	Moving to and from chairs, toilet, bed and car
LUNGES	Walking up stairs or hills
CHEST FLY	Pushing yourself out of a chair or up off the ground, pushing a lawn mower, grocery cart or opening a door
FRONT ARM RAISES	Putting household items into and taking them down from high cabinets, combing hair, getting dressed and undressed
BENT OVER LATERAL RAISE	Maintaining healthy posture, opening doors, dressing and undressing, carrying groceries or luggage
SIT-UP FROM THE TOP	Moving from chairs, toilet, bed and car, helping with balance and good posture
ABS LEG RAISES	Maintaining balance and good posture, decreasing the risk of back pain

FLUTTER KICKS	Maintaining balance and good posture, decreasing the risk of low back pain
FLOOR PLANK SHOULDER TAPS	Any activity that requires stabilization and balance, also decreasing the risk of low back pain
BIRD-DOG VARIATION	Any activity that requires stabilization and balance, also decreasing the risk of low back pain

Behavior change activities

Goal setting, action planning, and coping planning (problem solving) were the activities chosen in order to increase the participants' self-efficacy, motivation, and self-regulation, therefore increasing the chance of them adhering to physical activity during and after the program. These behavior change activities were presented to the participants during the cool-down part of selected sessions, where the concept of the activity was introduced, the participants had the opportunity to ask questions, and share with others how they could apply that into their daily life in order to maintain physical activity as part of their lives. The participants were not obligated to do the activities, but were strongly encouraged to do so through an explanation of how they could benefit from them. All the activity sheets were based on Chapter 2 "Becoming an Active Self-Manager" of the book "Living a Healthy Life with Chronic Condition", which was a suggestion made by the Family and Consumer Sciences agent and the "Stay Strong, Stay Healthy" instructor.

Setting specific, measurable, achievable, relevant, and time-oriented short-term goals could help the participants to guide their efforts towards their long-term goals. Being successful and achieving their short-term goals early on would increase their self-efficacy through mastery experiences, also increasing their motivation to stay physically active throughout and after the program. It would not matter what their physical activity starting point was, reaching their short-

term goals would give them confidence to progress towards long-term goals. In their literature review about the use of goal setting as a strategy for dietary and physical activity behavior change, Shilts, Horowitz, and Townsend (2004) found that 8 of 13 studies, with an appropriate research focus to investigate the effect of goal setting, showed that goal setting had a statistically significant positive effect on either dietary or physical activity behaviors (Annesi, 2002; Schnoll& Zimmerman, 2001; Duncan &Pozehl, 2002; Alexy, 1985; Schultz, 1993; Stenstrom, 1994; Annesi, 1998; Bandura &Cervone, 1983).

I selected action planning as one of the activities because it would help the participants to translate their intentions into actions. The gap between intentions and actions is typically referred to as the "intention-behavior gap" (Sniehotta, Scholz, &Schwarzer, 2005). By planning their actions, people develop a mental representation of "when" and "where", and behavioral actions represented by the "how", which is expected to be effective in the help of reaching a goal (Sniehotta, Scholz, &Schwarzer, 2005). According to Milne, Orbell, and Sheeran (2002), action planning promotes goal attainment by helping people in the initial stages of behavior change. Action planning was proven to be a strong predictor of health behavior (Abraham et al., 1999). The action planning activity that the participants received involved answering questions such as "What exactly are you going to do?", "How much will you do?" "When will you do this?" and "How often will you do this activity?".

Even though action planning can solve persistence problems, physical activity is a complex behavior. Besides that, older adults face a variety of individual, interpersonal, environment, and community level barriers to engage and maintain physical activity (Bethancourt et al., 2014), such as chronic diseases (Belza et al., 2004) and chronic pain (Cooper et al., 2001), fear of falling (Cooper et al., 2001) and personal safety when considering exercising

outdoors (Belza et al., 2004), lack of interest, motivation, discipline, or time (Whitehead et al., 2006), and lack of knowledge (Newson & Kemps, 2007). A coping planning activity was applied in order to teach the participants effective tools to overcome some of these barriers they may face during or after the eight-week program. The activity received the name of "Problem solving", and involved seven steps: identifying the problem, making a list of ideas to solve the problem, picking one idea and trying, checking the results, picking another idea from the list and trying if needed, using other resources, and maybe accepting that the problem does not have a resolution in the moment. All the activity sheets were based on Chapter 2 "Becoming an Active Self-Manager" of the book "Living a Healthy Life with Chronic Condition", which was a suggestion made by preceptor.

- Behavior change activities - Goal setting

Many people find that having a firm goal in mind motivates them to move ahead on a project. Goals are most useful when they are SMART, that is: specific, measurable, achievable, relevant and time-oriented. Short-term goals will help you make physical activity a regular part of your daily life. For these goals, think about the things you want to accomplish during your week. Make sure your short-term goals will really help you be more active. If you are already active, think of short-term goals to increase your level of physical activity. For example, over the next week or two, increase the amount of weight you lift or try a new kind of physical activity. No matter what your starting point, reaching your short-term goals will give you confidence to progress toward your long-term goals.

For now, we are going to focus on short-term goals. What do you want to achieve in the next week or couple of weeks?

NAME: _____

Initial Goal*(Write the goal you have in mind)*:

_____

Now let's make your goal a SMART goal!

1. Specific*(What exactly do you want to accomplish? Example: instead of "I want to do more physical activity", try "walk to work 2 times/week", "take the stairs", "do one "Stay Strong, Stay Healthy" session at home"...)*

_____

_____

2. Measurable*(How can you measure progress and know if you've successfully met your goal? If your goal is to "walk more", how do you know that you are walking more?)*:

_____

_____

3. Achievable*(Do you have the skills required to achieve the goal? Make sure your goal is not too easy or too hard. It should be a challenge but possible.)*:

_____

_____

4. Relevant*(Why is this significant to you?)*

_____

_____

5. Time-oriented*(When will you achieve this goal?)*:

_____

_____

S.M.A.R.T. Goal*(Review what you have written, and craft a new goal statement based on what the answers to the questions above have revealed):*

_____

_____

After you decide on your short-term goals, go on to identifying your long-term goals. Focus on where you want to be in 6 months, a year, or 2 years from now. Long-term goals also should be realistic, personal, and important to you.Think about all the things you want to accomplish. Write down your goals. Put them where you can see them and review them as needed.

- Behavior change activities - Action planning

The secret after setting goals is to plan what you are going to do to achieve them. The secret is to not try to do everything at once. Instead, look at what you can realistically expect to accomplish within the next week. We call this action plan: something that is short-term, is doable, and sets you on the road toward your goal. Remember, the action plan (just like the goal setting) should be something that YOU want to do or accomplish.

First, decide what you will do this week. For a step climber, this might be climbing three steps on four consecutive days.

Make sure that your plans are "action specific"; that is, rather than just deciding "to lose weight", think about the steps that you need to take, like "replace soda with tea".

The plan should answer all of the following questions:

- Exactly what are you going to do? Are you going to walk home, workout at home, take the stairs?

- How much will you do? This question is answered with time, distance, portion, or repetitions. Will you walk one block, walk for 15 minutes, practice strengthening exercises for 15 minutes?
- When will you do this? Be specific: before lunch, upon coming home from work, first thing in the morning.
- How often will you do the activity? Remember to be realistic: we all would like to do things every day, but that is not always possible. It is usually best to decide to do an activity three or four times a week to give yourself a "wiggle room" if something comes up. If you do more, so much the better.

- Behavior change activities - Coping planning/problem solving

After deciding what you want to accomplish (Goal setting) and making a plan (Action planning) to achieve your goals, you are in the right path to be successful! But sometimes, or most of the time, life responsibilities can be overwhelming and we start to face barriers that make harder to keep up with our plan.Do not worry, for each problem there is a solution. In addition, if there's not one, it is ok!

Steps in Problem Solving:

1. Identify the problem. This is the first and most important step in problem solving, and usually the most difficult step as well. What can go wrong? (Example: My goal is to go to the gym 5 times/week, but this week it is raining and I do not have a car or someone to give me a ride.)
2. List ideas to solve the problem. You may be able to come up with a good list yourself, but you may sometimes want to call on your consultants – friends, family, members of your healthcare team, or community resources. (Example: if it is raining and I cannot go

to the gym, I can workout at home using a YouTube video, or the extra exercises from "Stay Strong, Stay Healthy".)

3. Pick an idea to try. As you try something new, remember that new activities are usually difficult. Be sure to give your potential solution a fair chance before deciding it will not work. (Example: I tried many times exercising at home by myself but I do not enjoy it. So next time that it's raining and I can't go to the gym, I'll call a friend to exercise at home with me.)
4. Check the results after you have given your idea a fair trial. If all goes well, your problem will be solved. (Example: Now I have a group of friends that I workout with when we can't go to the gym.)
5. If you still have the problem, pick another idea from your list and try again.
6. Use other resources (your consultants – friends, family, K-State Research and Extension Office) for more ideas if you still do not have a solution.
7. Finally, if you have gone through all of the steps until all the ideas have been exhausted and the problem is still unsolved, you may have to accept that your problem may not be solved right now. This is sometimes hard to do, but the fact that a problem can't be solved right now doesn't mean that it won't be solved later. Even if your path is blocked, there are probably alternative paths, so don't give up and keep going!

My goal	The problem	Solutions
Example: go to the gym 5 times/week	It's raining	I will do a 30-minute workout video at home I will do the extra exercises at home I will ask a friend for a ride …

- 4-H Verde Clovers Camp schedule

In conjunction with the Family and Consumer Sciences agent and my preceptor, Virginia Barnard, the 4-H Youth Development agent John Jobe, the 4-H Youth Development intern at the time Erick, and the 4-H Verde Clovers club lead volunteer Aliah, we planned and organized a 3-day 4-H Verde Clovers camp. Our idea was to take the Verde Clovers members to places that they would not have the opportunity to visit normally, and talk to people that they would not have the opportunity to meet and learn from them about their work, responsibilities, and experiences. Camp indoor activities (STEM, nutrition, and physical activity) took place at the Seven Dolors Catholic Church basement.

Wednesday, July 19th

9-9:30 am Ice Breaker and Snack

10:00 am Depart for Civic Plus

10:15 – 11:15 am Tour of Civic Plus

11:20-Noon- Lunch (make your own)

Noon-1:20 pm STEM with Eric

1:30 pm Depart for Meadowlark Hill

1:45-2:45 pm Meadowlark Hills Exploration/Olympics

Thursday, July 20th

9-10:05 am Ice Breaker and Snack

10:05 am Depart for Insect Zoo

10:30-11:30 am KSU Insect Zoo

11:45-12:30 pm Lunch (make your own)

12:30- 2:00 pm STEM with Eric

2:00- 3:00 pm Painting on Canvas 101

Friday, July 21st

9-9:30 am Ice Breaker and Snack

9:30 am Depart for Ahearn Fieldhouse

9:45-11:00 am Ahearn Fieldhouse

11:15-Noon Lunch (make your own)

Noon-12:30pm Finish STEM Projects

12:30 pm Depart for Vanier Sports Complex

12:45-2:00 pm Tour Vanier

2:15-3:00 pm Call Hall Ice Cream

Chapter 4 - MPH Foundational Competencies

Throughout my field experience with the K-State Riley County Research and Extension Office, I was exposed to many public health competencies and got the chance to apply the knowledge I gained through my Master of Public Health degree. I was exposed to multiple cultures, age groups, and a variety of activities organized by the K-State Research and Extension agents. Among the 22 MPH Foundational Competencies, I believe the five that were best attained and utilized during my field experience were to (1) interpret results of data analysis for public health research, policy or practice; (2) discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels; (3) assess population needs, assets and capabilities that affect communities' health; (4) propose strategies to identify stakeholders and build coalition and partnerships for influencing public health outcomes; and (5) select communication strategies for different audiences and sectors.

Throughout my field experience I demonstrated an ability to **interpret results of data analysis for public health research, policy or practice** by utilizing data from research about older adults' health and age-related changes that might be addressed by increasing physical activity levels, especially with resistance training. I utilized this data to organize the extra exercises for the "Stay Strong, Stay Healthy" participants, and to explain what changes they could expect by engaging in more daily physical activity. andInterpreting research data also helped me to understand how to facilitate behaviorchange by targeting the SCT variables such as self-efficacy with the behavior change activities.

By working with the 4-H Verde Clovers club, and being part of the "Everybody Counts" event, I was able to experience and understand social inequities. These experiences, when added

to my multicultural personal experiences, increased my ability to **discuss the means by which structural bias, social inequities and racism undermine health equity at organizational, community and societal levels**. The 4-H Verde Clovers club members are mostly first-generation Americans, and many of their parents are non-English speakers, facing many barriers that might affect their abilities to find jobs, their living situations, and their health-related outcomes. “Everybody Counts” is a grassroots effort organized in response to a report to the USD 383 Board of Education that more than 250 students reported experiencing homelessness, being operated under auspices of the Riley County Council of Social Service Agencies. The 2017 event was organized at the Douglass Community Center and provided basic medical, dental, mental health, and diabetes screenings to anyone who was in need. Blood pressure checks, hearing screenings, and cleaning and adjusting eyeglasses services were also available. The majority of the people attending the event face social inequities and sometimes racism that negatively affect their health-related outcomes. I also utilized the ability to **assess population needs, assets and capability that affect communities’ health** while being part of the “Everybody Count” event, when I had the opportunity to distribute the Riley County Food Survey for the Flint Hills Wellness Coalition, assessing population needs regarding the food system in Manhattan and Riley County.

While working in the K-State Riley County Research and Extension office, and being part of daily activities, I experienced the extension agents contacting stakeholders and other entities in order to build strong coalitions and partnerships that would make projects possible. Learning from their experiences, I demonstrated the ability to **propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes** during the brainstorm phase of the 3-day 4-H Verde Clovers camp. We utilized the Seven

DolorsCatholic Church basement for most of the indoor camp activities, and prior to the camp I contacted the responsible parties for the location, building the partnership and making the utilization of their basement possible. When organizing outside camp activities, contacting stakeholder was also an important part of the organization phase. In order to visitCivic Plus, Vanier Football complex, and Meadowlark Hills, we contacted the responsible parties, explaining how the 4-H Verde Clovers club members would benefit from visiting their structures, and scheduling our visits.

Finally, throughout my field experience I had the opportunity to use my communication skills. By communicating the importance of engaging in more physical activity and how to make physical activity part of daily life to the "Stay Strong, Stay Healthy" participants, communicating food safety strategies to the 4-H Verde Clovers club members and their parents in English and Spanish, and communicating health-related information during the 2017 Riley County Fair, I was able to **select communication strategies for different audiences and sectors**. I also demonstrated this ability by mailing important and practical information about nutrition and physical activity to the WIC Nutrition Program families.

Conclusion

In conclusion, my time with the K-State Riley County Research and Extension gave me the opportunity to put into practice knowledge and skills that I acquired throughout my education within the MPH program. As I look back, I conclude that I acquired a real-world perspective of public health in the community of Riley County. My field experience gave me the opportunity to better understand the community that I am part of, to interact directly with various segments of the community,to experience and understand their needs, and to be part of the efforts that are made by many organizations to address the community needs in the best way possible. This unique opportunity to learn and be part of the extension serviceof the oldest land-grant university in the nation, and the things that I learned during this time will be memorable and useful in my future as a public health professional.

By working under the Family and Consumer Sciences agent, I had the opportunity to useevidence-based knowledge of the relationship between physical activity and population health and wellbeing, to experience how social, behavior, and social cultural factors contribute to participation in physical activity, to use social and behavior theory and frameworks to promote physical activity and behavior change, to develop skills for creating and evaluating physical activity interventions, and to develop the ability to collaboratively communicate with community partners and other organizations from the Riley County area to promote physical activity and other healthy behaviors in our community. I will always be grateful to all the K-State Riley County Research and Extension agents and staff that welcomed me and allowed me to be part of their daily activities. My field experience with the K-State Riley County Research and Extension exceeded all my expectations and gave me a better understanding of public health at the

community level. Overall, this experience and my education as a student in the MPH program have opened my eyes to all the professional opportunities within the realm of public health.

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Appendix

Appendix A - Extra Exercises Level 1

EXERCISE 1: WALL SQUAT

A great exercise for strengthening hips, thighs, and buttocks

THE MOVEMENT:

1. Stand with your head and back against a wall. Position your feet shoulder-width apart, about 18 inches from the wall, and keep your arms at your sides.
2. Lower your body into a squat position until your thighs are parallel to the floor.
3. Hold.

You can start counting until 10. This equals 1 set. Rest for about 1 minute and then complete a second set. With time, you can increase the amount of seconds holding your squat.

MAKE SURE YOU:

- Tighten your abdomen
- Don’t hold your breath
- Keep your shoulders back

EXERCISE 2: SEATED HEEL RAISE

A great exercise to strength your calves and ankles.

THE MOVEMENT:

1. Seated on a chair, slowly push as far as you can on the balls of your feet.
2. Then slowly lower your heels back to the floor.

Repeat 10 movements for 1 set. Rest for about 1 minute and then complete a second set.

MAKE SURE YOU:

- Breathe regularly throughout the exercise
- Keep a good posture

EXERCISE 3: SIDE ARM RAISE

A great exercise for strengthening deltoids (shoulders).

THE MOVEMENT:

1. Stand up straight and tall, feet shoulder-width apart, knees slightly bent. With a weight in each hand, place your palms facing your thighs.
2. While keeping your upper body still and your arms slightly bent, raise your arms until they are parallel to the ground.
3. Slowly lower your arms back to the starting position.

Repeat 10 movements for 1 set. Rest for about 1 minute and then complete a second set.

MAKE SURE YOU:

- Tighten your abdomen
- Keep your wrists straight and your trunk still
- Relax your neck and squeeze shoulder blades together
- Breathe regularly throughout the exercise
-

EXERCISE 4: FRONT ARM RAISE

A great exercise for strengthening deltoids (shoulders).

THE MOVEMENT:

1. Stand up straight and tall, feet shoulder-width apart, knees slightly bent. With a weight in each hand, place your palms facing your thighs.

2. While keeping your upper body still and your arms slightly bent, raise your arms until they are parallel to the ground.
3. Slowly lower your arms back to the starting position.

Repeat 10 movements for 1 set. Rest for about 1 minute and then complete a second set.

MAKE SURE YOU:

- Tighten your abdomen
- Keep your wrists straight and your trunk still
- Relax your neck and squeeze shoulder blades together
- Breathe regularly throughout the exercise

EXERCISE 5: WALL PUSH-UP

A great exercise for strengthening chest, shoulders and triceps.

THE MOVEMENT:

1. Stand about 1 foot away from the wall with your feet flat on the ground hip-distance apart. Reach your arms out straight and place your hand on the wall at chest height, approximately shoulder-width apart.
2. Bend your elbows and slowly lower yourself against the wall.
3. Push your body back to the starting position, without locking your elbows.

Repeat 10 movements for 1 set. Rest for about 1 minute and then complete a second set.

MAKE SURE YOU:

- Do not arch your back or sag your stomach.
- Do not hold your breath
- Maintain a good posture squeezing your abs

EXERCISE 6: SEATED ABS

A great exercise for strengthening abdominal muscles

THE MOVEMENT:

1. Seat tall using a chair, with your arms crossed over the chest or with your palms facing your knees.
2. Slowly lower yourself against the back of the chair. YOU DO NOT NEED TO TOUCH IT, make sure the movement is comfortable to you.
3. Go back to the starting position, keeping your back straight.

Repeat 10 movements for 1 set. Rest for about 1 minute and then complete a second set.

MAKE SURE YOU:

- Don’t arch your back or neck
- Don’t hold your breath
- Maintain a good posture squeezing your abs
- Challenge yourself with more difficult exercises

EXERCISE 7: SEATED ROTATION

A great exercise for strengthening your abdominal and low back muscles

THE MOVEMENT:

1. Seat tall using a chair with your palms facing your knees.
2. Cross your arms over your chest.
3. Slowly rotate from one side to another. YOU DO NOT NEED TO TOUCH THE BACK OF THE CHAIR.

Repeat 10 movements for 1 set. Rest for about 1 minute and then complete a second set.

MAKE SURE YOU:

- Don’t arch your back
- Your neck and shoulders move together
- Don’t hold your breath

EXERCISE 8: SEATED BACK/HIPS EXTENSION

A great exercise for strengthening low back and hips muscles, and help with posture

THE MOVEMENT:

1. Seat tall using a chair with your palms facing your knees.
2. You can keep your palms facing your knees or cross your arms over your chest.
3. Slowly bend over without arching your back. YOU DO NOT NEED TO TOUCH YOUR KNEES WITH YOUR CHEST.
4. Go back to the starting position.

Repeat 10 movements for 1 set. Rest for about 1 minute and then complete a second set.

MAKE SURE YOU:

- Don’t arch your back, keeping a good posture
- Don’t hold your breath

EXERCISE 9: SEATED ELBOW TO KNEE

A great exercise for strengthening abs and low back muscles

THE MOVEMENT:

1. Seat tall using a chair.
2. Raise one arm.
3. Bring the raised arm and the opposite leg together. IF YOUR KNEE AND ELBOW DO NOT TOUCH EACH OTHER IT IS FINE, just do what you can.
4. Go back to the starting position and do the same movement with opposite arm and leg.

Repeat 10 movements for 1 set. Rest for about 1 minute and then complete a second set.

MAKE SURE YOU:

- Keep a good posture
- Don't hold your breath

BALANCE EXERCISES

Each year, more than 2 million older Americans go to the emergency room because of fall-related injuries. A simple fall can cause a serious fracture of the arm, hand, ankle, or hip. Balance exercises can help you prevent falls and avoid the disability that may result from falling.You can do the balance exercises in this section as often as you like. They overlap with the lower-body strength exercises, which also can improve your balance.

Have a sturdy chair or a person nearby to hold on to if you feel unsteady.

These exercises can improve your balance even more if you modify them as you progress. Start by holding on to a sturdy chair for support. To challenge yourself, try holding on to the chair with only one hand; then with time, you can try holding on with only one finger, then no hands. If you are steady on your feet, try doing the exercise with your eyes closed.

- For more information, go to https://www.nia.nih.gov/health/publication/exercise-physical-activity/sample-exercises-balance

Exercises in this section:

- Stand on one foot
- Heel-to-toe walk
- Toe-to-heel walk
- Balance walk

STAND ON ONE FOOT

1. Stand on one foot behind a study chair, holding for balance.
2. To challenge yourself further, try holding on to the chair with only one hand. As you feel steady, try with your eyes closed.

HEEL-TO-TOE WALK

1. Position the heel of one foot just in front of the toes of the other foot. Your heel and toes should touch or almost touch.
2. Choose a spot ahead of you and focus on it to keep you steady as you walk.
3. Take a step. Put your heel just in front of the toe of your other foot.
4. As you feel steady, you can try closing your eyes.

TOE-TO-HEEL WALK

You will do the opposite of the heel-to-toe walk, going backwards.

1. Position the heel of one foot just in front of the toes of the other foot. Your heel and toes should touch or almost touch.
2. Choose a spot ahead of you and focus on it to keep you steady as you walk.
3. Take a step back. Put your toe just in the back of the heel of your other foot.
4. As you feel steady, you can try closing your eyes.

BALANCE WALK

1. Raise arms to sides, shoulder height.
2. Choose a spot ahead of you and focus on it to keep you steady as you walk.
3. Walk in a straight line with one foot in front of the other.
4. As you walk, lift your back leg. Pause for 1 second before stepping forward.
5. As you progress, try looking from side to side as you walk, or try closing your eyes.

Appendix B - Extra Exercises Level 2

EXERCISE 1: ISOMETRIC SQUAT HOLD

A great exercise for strengthening hips, thighs, and buttocks, also helps with posture

THE MOVEMENT:

1. Stand with your feet shoulder-width apart, toes pointing forwards.
2. Engaging your core, and keeping your back in a neutral position, start to slowly sit your hips back as though you were sitting into a chair. Only sit back as far as is comfortable (you should not feel any pain in your knees or joints).
3. Either place your hands on your hips, or extended straight out in front of you.
4. Hold.

You can start counting until 10 seconds. This equals 1 set. Rest for about 1 minute and then complete a second set. With time, you can increase the amount of seconds holding your squat.

MAKE SURE YOU:

- Tighten your abdomen
- Don’t hold your breath
- Keep a good posture

EXERCISE 2: LUNGES

A great exercise for strengthening hips, thighs, and buttocks. Also improving balance and posture.

THE MOVEMENT:

1. Keep your upper body straight, with your shoulders back and relaxed and chin up (pick a point to stare at in front of you so you don't keep looking down). Always engage your core.
2. Step forward or backward with one leg, lowering your hips until both knees are bent at about a 90-degree angle
3. Push back up to the starting position.

Repeat 10 movements with each leg for 1 set. Rest for about 1 minute and then complete a second set.

MAKE SURE YOU:

- Keep your front knee directly above your ankle, not pushed out too far
- Keep the weight in your heels as you push back up to the starting position
- Tighten your abdomen
- Don’t hold your breath
- Keep a good posture

EXERCISE 3: CHEST FLY

A great exercise for strengthening pectoralis (chest) and anterior deltoids (front shoulder).

THE MOVEMENT:

1. Lie down on a flat bench or on the floor with a weight on each hand resting on top of your chest. The palms of your hand will be facing each other.
2. Lift the weights in front of your chest with the palms of your hand facing each other. This is the starting position.

3. With a slight bend of the elbows, lower your arms out in a wide arc until your arms are almost parallel to the floor
4. Return your arms to the starting position.

Repeat 10 movements for 1 set. Rest for about 1 minute and then complete a second set.

MAKE SURE YOU:

- Tighten your abdomen and squeeze shoulder blades together
- Keep your wrists straight
- Relax your shoulders and neck
- Breathe regularly throughout the exercise

EXERCISE 4: FRONT ARM RAISE

A great exercise for strengthening deltoids (shoulders).

THE MOVEMENT:

1. Stand up straight and tall, feet shoulder-width apart, knees slightly bent. With a weight in each hand, place your palms facing your thighs.
2. While keeping your upper body still and your arms slightly bent, raise your arms until they are parallel to the ground.
3. Slowly lower your arms back to the starting position.

Repeat 10 movements for 1 set. Rest for about 1 minute and then complete a second set.

MAKE SURE YOU:

- Tighten your abdomen
- Keep your wrists straight and your trunk still
- Relax your neck and squeeze shoulder blades together

- Breathe regularly throughout the exercise

EXERCISE 5: BENT OVER LATERAL RAISE

Great exercise for strengthening upper and middle back and back shoulders. Also helps you to have a better posture.

THE MOVEMENT:

1. Stand with your feel shoulder-width apart and your knees slightly bent, holding a weight in each hand. Bend forward while keeping your back straight. Extend arms in front of you so they are directly under your chest, with your palms facing each other.
2. Maintaining a slight bend in your elbows, raise your arms out to the side until they are parallel with the floor.
3. Slowly return the weight back to the starting position.

Repeat 10 movements for 1 set. Rest for about 1 minute and then complete a second set.

MAKE SURE YOU:

- Keep your back and neck straight
- Keep your wrists straight and your trunk still, engaging your abs
- Squeeze shoulder blades together
- Breathe regularly throughout the exercise

EXERCISE 6: SIT-UP FROM THE TOP

A great exercise for strengthening abs and core muscles, helping your posture.

THE MOVEMENT:

1. Sit on the floor with your back straight and bent knees. Position your hands with the palms facing your knees.
2. Keeping your back and neck straight, slowly lower your body towards the floor. YOU DO NOT NEED TO TOUCH THE FLOOR, just go as far as you are comfortable with.
3. Go back to the starting position.

Repeat 10 movements for 1 set. Rest for about 1 minute and then complete a second set.

MAKE SURE YOU:

- Keep your back and neck straight (this is not a crunch)
- Don't hold your breath
- Go as close to the floor as you can

EXERCISE 7: ABS LEG RAISES

A great exercise for strengthening your abdominal muscles

THE MOVEMENT:

1. Lie on your back with your arms at your sides, palms down and legs extended.
2. Keeping your hips and shoulders on the floor, slowly raise your legs as far as you are comfortable. YOU DO NOT NEED TO GO ALL THE WAY UP, just go as far as you can.
3. Controlling your legs and your back straight, go back to the starting position.

To make the movement easier, you can bend your knees and follow the same steps with your knee bent. Repeat 10 movements for 1 set. Rest for about 1 minute and then complete a second set.

MAKE SURE YOU:

- Do not arch your back
- Keep looking toward the ceiling
- Do not hold your breath

EXERCISE 8: FLUTTER KICKS

A great exercise for strengthening your abdominal muscles

THE MOVEMENT:

1. Lie on your back with your arms at your sides, palms down and legs extended.
2. Keeping your hips and shoulders on the floor, slowly lift your legs 4 to 6 inches off the floor as far as you are comfortable.
3. Keep your legs straight as you rhythmically raise one leg higher, then switch. Move in a fluttering, up and down motion.

You can start counting until 10 seconds. This equals 1 set. Rest for about 1 minute and then complete a second set. With time, you can increase the amount of seconds doing the flutter kicks

MAKE SURE YOU:

- Do not arch your back
- Keep looking toward the ceiling
- Don’t hold your breath

EXERCISE 9: FLOOR PLANK SHOULDER TAPS

A great exercise for strengthening your core muscles

THE MOVEMENT:

1. Safely move to the floor.

2. Place your hands directly under your shoulders. Place your toes or knees on the ground behind you.
3. Press your hips up to a pushup position, keeping your back flat and buttocks down, but do not let your hips drop.
4. Maintaining a straight line from your heels to your head and squeezing your belly button, slowly tap your shoulder with the opposite hand.

You can start counting until 10 seconds. This equals 1 set. Rest for about 1 minute and then complete a second set. With time, you can increase the amount of secondsholding your plank

MAKE SURE YOU:

- Don't arch your back and look forward
- Don't hold your breath

EXERCISE 10: BIRD-DOG VARIATION

A great exercise for strengthening your core muscles

THE MOVEMENT:

1. Safely move to the floor. While on all four, slowly lift the right arm and left leg simultaneously until parallel with the floor.
2. Squeeze your core muscles to balance at the top of the movement.
3. After total extension (and before doing the movement with opposite arm and leg), you are going to crunch your elbow and your knee so that they meet underneath your body. IF YOUR KNEE AND ELBOW DON'T TOUCH EACH OTHER, IT IS FINE!
4. Go back to starting position and repeat on opposite side.

Repeat 10 movements for 1 set. Rest for about 1 minute and then complete a second set.

MAKE SURE YOU:

- Do not arch your back and look forward
- Do not hold your breath

MOBILITY EXERCISES

Mobility is the ability to move freely without stress on the body. Flexibility is dependent on the range of motion of our muscles. The two are not the same, but are not mutually exclusive. Good mobility can assist your flexibility and vice versa. Mobility exercises can improve the range of motion of your joints and the flexibility of your muscles as well. It can improve your posture and alleviate everyday aches and pain, as well as improve your body awareness.

KNEE ROLLS

Lie on your back, with your arms open to the sides and palms facing the floor. With your knees together and bent, roll them to one side, keeping both shoulder on the floor. Do the same to the other side.

BODY ROLLS

Move to the floor, with knees and palms on the floor. With one of your hands touching your head, slowly rotate in and out. Keep your back and neck flat, and squeeze your abs. Do the same to the other side.

BALANCE EXERCISES

Each year, more than 2 million older Americans go to the emergency room because of fall-related injuries. A simple fall can cause a serious fracture of the arm, hand, ankle, or hip. Balance exercises can help you prevent falls and avoid the disability that may result from falling.You can

do the balance exercises in this section as often as you like. They overlap with the lower-body strength exercises, which also can improve your balance.

Have a sturdy chair or a person nearby to hold on to if you feel unsteady.

These exercises can improve your balance even more if you modify them as you progress. Start by holding on to a sturdy chair for support. To challenge yourself, try holding on to the chair with only one hand; then with time, you can try holding on with only one finger, then no hands. If you are steady on your feet, try doing the exercise with your eyes closed.

- For more information, go to https://www.nia.nih.gov/health/publication/exercise-physical-activity/sample-exercises-balance

Exercises in this section:

- Warrior I
- Warrior II
- Warrior III

WARRIOR I

From a standing position, the legs are in a wide stance with the feet aligned and flat on the earth. The back foot is in a 60-degree angle towards the front. The hips are squared. The inner thighs are rotated towards each other. The front knee is bent in a 90-degree angle directly above the ankle. The arms extend up to the sky with the biceps by the ears. The hands can be together or separated and facing each other with the fingers spread wide. The ribcage is lifted and the pelvis tucked. The gaze is forward.

WARRIOR II

From a standing position, the legs are separated into a wide stance. The front knee is bent in a 90-degree angle directly above the ankle. The back leg is extended and straight with the outside

edge of the back foot gripping the earth in a 60-degree angle towards the front. The inner thighs are externally rotated away from each other. The pelvis is tucked. The ribcage is lifted. The arms are extended out to the sides and are aligned with the shoulders in a straight line with the fingers reaching out as the shoulder blades squeeze together. The gaze is toward the frontfingers.

WARRIOR III

From a standing position, one leg is rooted and perpendicular to the earth while the other leg is raised, extended back and parallel to the earth. The head of the thighbone of the standing leg presses back towards the heel and is actively rooted into the earth. The arms and the extended leg lengthen in opposing directions with Bandhas engaged. The hips are squared and the tailbone presses firmly into the pelvis. The arms, torso, and extended raised leg should be positioned relatively parallel to the floor. The gaze is forward or down.