Exercise has been shown to reduce cancer incidence and mortality and improve quality of life in several populations. However, the power of exercise for cancer prevention and control has not been tested among Native Americans. University of Arizona and Northern Arizona University research partners, Drs. Bea, Schwartz, and de Heer, and oncology nurse, Etta Yazzie, have been engaged in the Physical activity among Native American cancer survivors research project and community exercise program together since 2015. The project began as a pilot study and has advanced to an ongoing multi-site trial. The overarching goal of the research is improve health and quality of life among Native American cancer survivors in collaboration with the community. In addition, the team has created outreach materials on cancer prevention for community events, clinics, chapter houses and local conferences. Over 20 students have been trained in culturally competent health related research, with opportunities for new students this year.

The initial pilot project used focus groups and interviews with Navajo cancer survivors (N=32) and family and friends (N=8) to provide input from the Navajo community on the habits, barriers, preferences for physical activity among cancer survivors. Overall, Navajo cancer survivors expressed the need for access to restorative physical activity programs in the communities in which they live and work, as well as the need for culturally competent health care providers. The Navajo ideal of restoring balance after cancer diagnosis and treatment was an important theme across the focus groups and interviews and became the name of the physical activity program subsequently created. The culturally relevant cancer exercise program, Restoring Balance, is the first Native American cancer survivor exercise program in the US. It meets the American College of Sports Medicine recommendations for cancer exercise, but is culturally and clinically tailored. The research team published the detailed findings in the journal, American Indian and Alaskan Native Mental Health Research earlier this year. It free to the public and can be found at http://www.ucdenver.edu/academics/colleges/PublicHealth/research/
The research team also gained knowledge about the cancer care experience in the Navajo community; publication of these findings is forthcoming.

The pilot study also included testing the newly formed Restoring Balance program. It enrolled 18 Navajo cancer survivors in the study and offered free exercise training for a family member or friend of the cancer survivor to help prevent cancer in the community. The feasibility study was conducted in one rural, reservation site, and one urban location among cancer survivors with a history of various tumor types. This year, the Restoring Balance program was reviewed by cultural experts from multiple tribal communities in Northern Arizona to further adapt the program for cancer survivors across the broader Native American community.

The evidence based exercise program is currently enrolling participants from all Native backgrounds at Hozhoogo Iina Wellness Center located in Winslow, AZ, at the NACA Wellness Center located in Flagstaff, AZ, and at the Leupp chapter house in Leupp, AZ. The local Native American exercise trainers are certified and have the opportunity to increase their fitness training certification levels and research skills through the research program. Enrolled participants receive free training sessions with these certified trainers, health measurements that they can share with their health care providers, and reimbursement for time and travel to measurement visits. To date, the Restoring Balance program has enrolled 25 cancer survivors and their family members. The goal is to enroll 100 Native American cancer survivors and community members this year.

If you are a cancer survivor or the family member or friend of a cancer survivor and would like more information on cancer prevention or the Restoring Balance exercise program, please contact Brenda Charley at (928) 856-1030 or at Brenda.Charley@nau.edu.

SACNAS

This past September our NAU students along with UA PREP scholars attended and presented at the annual Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) in San Antonio, Texas.

SACNAS is an inclusive organization dedicated to fostering the success of Chicanos/Hispanics and Native Americans, from college students to professionals, in attaining advanced degrees, careers, and positions of leadership in STEM.

SACNAS will be held in Honolulu, Hawaii in 2019, October 31 to November 2, 2019.
Q: What made you choose the UA PREP program?
In 2015 I faced life changes that were both a blessing and tragedy. At the end of the summer of 2015, my fiancée and I became pregnant with our first child and then in October my fiancée passed away from an auto accident, leaving me pregnant and heart broken. Despite this incident, I had a community of support from friends, family, and faculty who encouraged and motivated me to finish my Bachelor of Science degree and to focus on my bundle of joy. Then, in April of 2016, my son was born. I struggled with a whirlwind of emotions such as depression, anxiety, stress, and joy as a single mom. My struggle was my greatest challenge and it affected my GPA. I felt like my GPA (below 3.0) was going to hinder me from getting accepted into graduate school. When I heard that a post-baccalaureate program could improve my GPA, enhance my chances of being accepted into graduate school, and pay me, I applied to UA PREP.

Q: Who is your UA PREP mentor and what is your research project?
I joined Dr. Megha Padi’s bioinformatics laboratory. Padi’s bioinformatics laboratory develops computational methods to combine with multi-’omics data and characterize how cellular networks are changed by cancer. I am currently working on RNA-seq analysis from experimental data collected on IMR90 fibroblast cells expressing green fluorescent protein (GFP), truncated large T antigen (TLT), small T antigen (ST), and ER (expressing both TLT and ST) from the Merkel cell polyomavirus. One end point from this analysis is to find biological pathways that are activated by TLT, ST, and ER relative to control cells (GFP).

Q: What are your futures plans when it comes to graduate school?
My main interest is genomics, cancer, and bioinformatics. I am currently looking at three schools, the University of Washington Genomic Science, University of Arizona Genetics, and the University of Colorado Molecular Biology Program.
Q: What made you choose the UA PREP program?
The program came at the perfect time for me; I had just graduated, but felt that I was not ready to apply to a master's or PhD program yet. The PREP program would allow me to gain more experience and put me in a more competitive position when I do apply to graduate programs.

Q: Who is your UA PREP mentor and what is your research project?
My prep mentor is Dr. William Montfort in the Chemistry and Biochemistry department. The main objective of the lab is to elucidate the structure of the protein soluble Guanylyl Cyclase (sGC), which is the primary receptor for nitric oxide and plays a critical role in blood pressure regulation, wound healing, and memory formation. At first I was working on finishing up data that provides evidence for a binding theory for the protein. Now, I am working on crystallizing the part of the protein that binds to nitric oxide, then we will be able to solve the structure of that part of the protein.

Q: What are your futures plans when it comes to graduate school?
I want to research insulin pathways and related genetic predispositions to metabolic disease among Native Americans and other minorities. At this moment, I plan to accomplish this by either going through the Molecular and Cellular Biology master's program here at the University of Arizona and then following up with the program for a PhD in genetics, or going into the Genomics program at the University of Washington.
Q: What made you choose the UA PREP program?
It was an opportunity to get some bench lab experience and to help build my resume for graduate school.

Q: Who is your UA PREP mentor and what is your research project?
My prep mentor is Dr. William Montfort in the Chemistry and Biochemistry department. We are on the beginning steps of nitric oxide functionality within triple negative breast cancer.

Q: What are your futures plans when it comes to graduate school?
I plan to attend graduate school and get involved in diabetes related research. I have an interest in Integrative Physiology and Molecular Medicine as potential paths in graduate school. I am currently interested in the Cellular and Molecular Medicine at the UA and the Integrative Physiology program at both the University of Michigan and UA.

DARIEN FULLER, UA PREP SCHOLAR
Diné and Potawatomi
Hometown: Shonto, Arizona

Darien Fuller is an alumnus of Northern Arizona University and NACP. She graduated with her Bachelors of Science degree in Health Science with a concentration in Public Health.

Q: What made you choose the UA PREP program?
I wanted to gain some more research experience in my field before deciding on my graduate level degree.
Q: Who is your UA PREP mentor and what is your research project?
My PREP mentor is Dr. Heidi Brown in the Department of Biostatistics and Epidemiology at the UA. Currently, I am looking at the association between diet and Helicobacter pylori infection in rural Navajo communities.

Q: What are your futures plans when it comes to graduate school?
I am interested in the Masters of Public Health program at University of Washington in Epidemiology. I am hoping to take the Maternal and Child/Women’s Health Track.

“My Journey” - Dr. Jennifer Erdrich

On November 7th, the Partnership for Native American Cancer Prevention Training Program welcomed Dr. Jennifer Erdrich as our first speaker for the “My Journey” seminar and networking series. “My Journey” is an internship project created by our University of Arizona graduate student assistant Alura Benally. The project aims to connect Native American students to other Native American professionals in the health sciences to encourage degree completion, promote research, and foster mentorship.

Dr. Jennifer Erdrich, has joined the department as an assistant professor and surgical oncologist, Dr. Erdrich specializes in melanoma, sarcoma and breast cancers and provides general surgical oncology care to tribal populations throughout southern Arizona.

Dr. Erdrich earned her medical degree from Harvard Medical School. She attained a Master in Public Health with a concentration in cancer prevention and completed an NCI-funded research fellowship at Harvard School of Public Health. In addition, she completed a fellowship in surgical oncology at Cedars-Sinai Medical Center in Los Angeles, Calif.

After personally witnessing many of the disparities in Native American health care, especially in the areas of surgical care and cancer treatment, Dr. Erdrich developed a particular clinical and research interest in serving tribal populations. Through joining the faculty at the Department of Surgery, she hopes to be able to expand the surgical oncology resources available to local tribal communities through multidisciplinary approaches that leverage innovation and teamwork.
**SACNAS Conference Highlights**

**Anika Martin** is a graduating Senior at Northern Arizona University, with a major in Public Health and a double minor in Biology and Health, and Wellness Coaching. Anika has been working aside Dr. Sanderson on an NACP-funded project this past semester.

Q: How did the SACNAS Conference influence you academically?

The SACNAS conference was full of many informative sessions that reinforced my interest in my field of study. I attended sessions geared towards helping minority populations with getting the help they need to reach their full health potential, which was similar to my current internship with NACP. I learned many useful information that I could use towards my research internship that could help me succeed and further my knowledge and abilities to gain experience in the public health field. The SACNAS conference has influenced me to continue my efforts to finishing my degree and help the community with the knowledge that I've gained throughout my years as a student.

Q: Describe your experience with the SACNAS Conference. What did you learn and how will it help you with your future endeavors?

Because this was my first SACNAS conference, I was very unaware and surprised at the events that were happening. I met so many other students who were interested in bettering the health of others, like myself, from all over the country. I also was amazed at the different projects of other students. In my opinion, the SACNAS conference not only educates others during breakout sessions, but it also promotes the importance of networking and building relationships. Being a minority, I always found it difficult to establish myself as a well-educated student in the world due to many reasons that stem from culture. That being said, this conference has helped me to learn that people of minority populations can be successful and that I was perfectly capable of doing the same. Because of this conference, I now plan to pursue a PhD in Public Health and eventually work to help minorities eliminate their disparities in physical and mental health.
**Victor Durueke** is a graduating Senior at Northern Arizona University with a major in Public Health. Victor has been working aside Dr. Priscilla Sanderson on an NACP-funded project this semester. Victor will be pursuing his Master’s at the University of Arizona College of Public Health in the Fall.

Q: What is something that has changed your point of view regarding your future career?

Something that changed my point of view regarding my career would have to be the sessions I attended. I made so many connections so far and I am thankful for that. I received advice from so many people, from the deans to employers and even fellow students. I learned that continuing my education is possible and there are ways to fund that.

Q: Did this conference help you determine what you want to do? If so, what?

This conference did indeed help me determine exactly what I want to do. I always had an idea that I wanted to earn my PhD. However, I did not know in what and how. I also had no idea how to fund it. After the conference I know that I want to earn my Doctorate in Behavioral Health or a PhD. in Public Health. It was definitely enlightening, I also learned that many programs out there will fund you to earn a PhD.

**Native American Role Model Speaker Series**

The NAU NACP Native American Role Model Speaker series, presented Naomi Lee, PhD. Dr. Naomi Lee is a new faculty member in the NAU department of Chemistry and Biochemistry. She is a member of the Seneca Nation and a first-generation college graduate.

Her goal is to use her research to reduce health disparities in tribal communities through biomedical research, STEM education, and mentoring. Dr. Lee’s research interests include biomedical research and Native health concerns related to infectious disease.

Those who attended the speaker series were able to enjoy a
Thanksgiving themed lunch and listen to her academic and career journey.

Before she began her successful career path, it started with her foundation of a close and loving family. Dr. Lee shared about the adversity she faced growing up, such as moving away from the reservation, family health, and limited exposure to opportunities.

She completed her undergrad at Rochester Institute of Technology. This is where she was introduced to research by joining a polymer lab and her interest in research grew. She got involved in AISES, the American Indian Science and Engineering Society, which brought her closer to other Native Americans in her field. This led to her building networks in STEM and Indian Country. Dr. Lee continued to gain many mentors, not only Native American, but among her peers and non-native science professionals.

She earned her Masters in Chemistry at the University of Rochester. Before continuing her PhD, she joined the Army National Guard to find direction in her life. Dr. Lee returned and eventually defended her thesis in December of 2012.

Dr. Lee was a postdoctoral fellow in the National Institute of Neurological Disorders and Stroke (NINDS) of the National Institute of Health (NIH). Her research focused on detecting and treating of human perpesvirus-6 (HHV-6). During her fellowship at NINDS, she completed an Institutional Review Board internship in the Bioethics Department.

By establishing a useful network with mentors, peers, and professionals this helped guide her decisions for her next step and led her to transition the University of New Mexico (UNM) Health Sciences Center. There, she was awarded the NIH Institutional Research and Academic Career Development Award. As her second Postdoc in the Department of Molecular Genetics and Microbiology at UNM, her project focused on the identification and development of potential HPV and gonorrhea vaccines candidates using virus-like particles.

Understanding how useful mentors are, she started to work with students and become a mentor as well. As a mentor, she works with students to improve American Indian and Alaskan Native representation in the STEM fields.

Dr. Lee inspired the audience with her journey. Concluding her talk, she shared some words of wisdom, that it is important to remember who you are and where you come from. She emphasized that education is not the only key to success, but also having a good support system and asking for help is vital.
Upcoming Due Dates

NACP/UBRP

A collaboration with the University of Arizona’s Undergraduate Biology Research Program (UBRP). This summer research opportunity is offered to six University of Arizona Native American undergraduates. Participants work 35 hours per week for twelve weeks in the summer on a mentored research project. It is an opportunity for students, who have little to no prior laboratory experience, to explore research as a career option.

Applications due Feb. 1st

SRI/GSTEP

A collaboration with the Undergraduate Research Opportunities Consortium (UROC). This is a ten-week full-time training program that provides Native American students with additional experiences to help ensure their successful transition to advanced degree programs. Students learn to develop their investigative capacity in cancer disparity research by conducting research and preparing for graduate studies.

*Mention NACP in application*

Applications due Feb. 1st

Graduate Programs Primer

A mini-conference at the University of Arizona to provide students in NACP about UA graduate programs in biomedical and cancer research. This includes faculty and UA staff presenting on a variety of topics from admissions to financial aid as well as students touring laboratories and other related facilities, held in conjunction with the UBRP poster session in January. During the conference, students speak with representatives from post-baccalaureate degree programs.

January 25th
National Institute of Neurological Disorders and Stroke (NINDS)

NINDS is an 8-week program conducting research in basic or clinical neuroscience labs. This internship is monthly stipend based on education level. The internship includes career development workshops, talks from worldwide recognized scientists, public health and journal clubs, and a poster session.

If interested: [https://www.training.nih.gov/programs/sip](https://www.training.nih.gov/programs/sip)
Deadline: December 23, 2018

30th Annual UBRP Conference

Join us for a day of poster presentations showcasing undergraduate research and hands-on science activities for the whole family! All UBRP students are expected to share their experimental results at the conference which is open to the public. Students are encouraged to invite the members of their research groups, family and friends, and their legislators. The conference is free and open to all.

Saturday, January 26, 2019 from 10:00 am to 3:00 pm at the ENR2 Building (1064 E. Lowell Street)

Early Application Deadline for UA PREP

The University of Arizona Post-baccalaureate Research and Education Program (UA PREP) seeks to provide American Indian/Alaskan Native students with a rigorous research and educational program that honors Indigenous perspectives and nurtures a strong sense of well-being and belonging. This program will enhance the confidence and success of participants and their matriculation into strong biomedical PhD programs and subsequently increase the diversity of PhD-level scientists. Upon completion of UA PREP, students will attain a Graduate certificate and 25% professional development. UA PREP accepts up to 4 participants into the program, which starts in early June of each year. Students will receive a salary of $27,000, plus health insurance.