Metal Exposure Toxicity Assessment on Tribal Lands in the Southwest

Thinking Zinc —

Beesh Dootł’izh Bantsáhákees

A study to assess how taking the recommended daily amount of zinc may help repair damage from harmful metals among Navajo Nation residents

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Approvals:

*Human research is monitored and approved by UNM HSC Human Research Protections Office (HRPO), the New Mexico Cancer Care Alliance and the Navajo Nation Human Research Review Board (NNHRRB) as required by federal, state and Tribal law. Approval of the zinc supplementation study discussed in this presentation is pending by the UNM (HRPO#: 18- XXX) and NNHRRB.*
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• Blue Gap-Tachee Chapter and Tachee Uranium Concerns Committee

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Thinking Zinc —  
*Beesh Dootł’izh* Bantsáhákees 
[metal + blue (the one that is) + thinking about it]

- This study will be conducted in the Blue Gap-Tachee Chapter and Red Water Pond Road area of the Navajo Nation, 2018-2021

- Blue Gap-Tachee Chapter adopted resolution supporting its participation in the Zinc Study in October 2017

- Red Water Pond Road Community supported UNM METALS Center in 2014 and 2016, adopted a resolution of support in May 2018

We are asking for community review and comment on these outreach and educational materials

*From “Code Talker” by Chester Nez and Judith Schiess Avila, 2011.*
We are concerned about exposure to some metals, especially uranium and arsenic, because they can damage your health. Here are some examples:

- Kidney disease
- Cardiovascular Disease
- Immune Disorders
- Cancers
- Skin Problems
Western Science Perspective

How can metals affect DNA repair?

- Normal repair function: “Go”
  - Zn is necessary for the repair process

- Repair function altered: “Stopped” or “Slowed”
  - As or U disrupts the repair process by replacing zinc in key proteins

- DNA repair function restored: “Go”
  - Zn protects the key proteins from As or U and restores the repair process
This painting shows how metals like uranium can damage DNA and cells, through the lens of a Native artist and biologist.

Painting by Mallery Quetawki, Zuni Pueblo
This painting shows how DNA damage may be repaired, like re-stringing a broken bead strand. Zinc is necessary for this process.

Painting by Mallery Quetawki, Zuni Pueblo
Why take zinc?

- In the right amounts, zinc — a metal that comes from Mother Earth — is an essential nutrient that promotes good health.

- Studies have shown that many people do not get enough zinc in their diet to keep their body healthy, to achieve balance.

- Taking a zinc pill is NOT a cure-all for all your ailments, and too much zinc may be harmful.

- Taking a zinc supplement at the recommended daily allowance of 11 milligrams zinc per day is considered safe.
Is zinc in our diets?

- Yes, but might not be in high enough amounts for everyone
- Some Navajo foods that have higher levels of zinc include:
  - Lamb
  - *Blue corn mush with juniper ash*
  - Pinon nuts
  - Chicken
  - Beef
  - Eggs
We will begin outreach and education in Blue Gap-Tachee and Church Rock areas in Fall 2018

Research volunteers needed
We are conducting research to understand if taking the daily recommended level of zinc protects our bodies from the effects of heavy metals in the environment.

To participate you are:
• 21-45 years of age
• Not diabetic
• Not allergic to zinc
• Not pregnant or nursing

You will:
• Have 4 study visits over 9 months
• Take a zinc supplement tablet
• Provide blood and urine samples
• Receive a gift card each visit

INTERESTED?
For more information or to participate, send email to info@sric.org, call 877-545-6775, or visit www.sric.org/Zinc
Thinking Zinc Study Timeline

0
Start of study

3 months later
(3rd to 4th month)

3 months later
(6th to 7th month)

3 months later
(9th to 10th month)

Baseline
- Education
- Eligibility screening
- Consent
- Collection of blood (1 tbs) & urine (3 tbs)
- gift card

Baseline/Zinc
- Education
- Continued eligibility
- Food frequency questionnaire
- Collection of blood (1 tbs) & urine (3 tbs)
- 3-month supply of 15 mg Zn tablets provided
- gift card

Zinc
- Education
- Continued eligibility
- Collection of blood (1 tbs) & urine (3 tbs)
- 3-month supply of 15 mg Zn tablets provided
- gift card

Last visit
- Education
- Continued eligibility
- Food frequency questionnaire
- Collection of blood (1 tbs) & urine (3 tbs)
- gift card

Our staff will contact you during the study to remind you to keep taking your zinc tablets and to attend the next visit.
Ahéhee’ – Thank You!
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