Writing a Successful Poster Abstract

Deborah Klein, MSN, RN, ACNS-BC, CCRN, CHFN, FAHA
Clinical Nurse Specialist, Cleveland Clinic

Sandra L. Siedlecki PhD RN CNS
Senior Nurse Scientist, Cleveland Clinic

Dimensions in Cardiac Care 2014
Objectives

• Discuss barriers to submitting an abstract for a presentation.
• Describe the process for an abstract submission.
• State the essential elements of an abstract.
• Describe the steps in creating a poster for presentation.
What is an Abstract?

- Original, concise statement or summary of a research study or project
- Varies in format depending on purpose and type (presentation, poster)
- States what you want readers to remember
- Most important single paragraph in a work
Purpose of an Abstract

• Summarizes a problem investigated, the research method, major findings, discussion, and implications of findings
• Enables the reviewer to make an informed decision about a proposed presentation or poster at a conference
Barriers to Writing and Submitting an Abstract

- Fear of rejection
- Fear of public criticism (the Imposter Syndrome)
- Lack of motivation
- Not enough time
- Lack of knowledge on the process
- Lack of confidence
- Lack of support/mentors
Getting Started

• **Completed** research or project

• Every paper or poster presented at a conference is the start of a published manuscript

• Presenting at a conference:
  • Helps in manuscript preparation
  • Provides feedback from participants
Select the Conference

• Selection of a conference is an opportunity to network with peers and is based on your expertise
• Go to organization/conference websites (www.nurse.org/orgs.shtml)
• Review conference audience, title and objectives
• Decide oral presentation or poster
• Access abstract submission guidelines and review
Abstract Submission Guidelines

• Review requirements on what material can be presented
• Examine review criteria (if available)
• Note deadlines for submission (date and time – be aware of time zones)
• Read published abstracts from last conference and/or on similar subject or study design
• Study the required abstract format
• Be aware of the word limit!
Dimensions in Cardiac Care 2014 – Cleveland Clinic

- Abstract Submission Guidelines
  - You are invited to submit an abstract of on-going cardiac, thoracic, vascular or critical care nursing research or projects for consideration in the poster session. Non-research posters should address clinical projects, novel programs or a solution to meet the needs of cardiac, thoracic, vascular, or critical care patients, families or the teams who care for these patients.

- Deadline
  - Abstract submission must be received no later than June 30, 2014. You will be notified of acceptance by July 15, 2014 via e-mail. Abstracts must be submitted by e-mail to caryt@ccf.org.
Submission Instructions
• Abstracts not conforming to the stated requirements will not be reviewed and will be returned to sender.

• Each abstract should be single spaced and fit on one page (not to exceed 300 words).
• Black type using a 12 pt. font size and 1” margins.
• Do not include charts or graphs.

• Research abstracts must include: problem statement, aims, methods (design, subjects, setting, variables, and interventions, if applicable), results, and implications for nursing. Bold type the title of each section.

• Non-research abstracts must include: background/problem, project description, project goals, evaluation/results and implications for nursing. Bold type the title of each section.
For submission of the abstract, please also include the following: Use a left justified margin for title and text, do not indent. Type the title in capital letters on the first and any following lines. Immediately after the title, list the last name and first initial of the authors. List the institution of the first author after the last author. Omit degrees and titles. Follow institutional name with city and state.
Example: NOVEL APPROACHES TO PATIENT CARE. Jones, J., Smith, N., Any Hospital, Cleveland, OH.
Leave the next line blank. Begin the abstract left-justified on the next line.
A single cover sheet must accompany the above copy that includes: Title, author(s) name, address, telephone number; primary author’s credentials and professional affiliation/job title; type of abstract you are submitting (research, clinical project, novel programs or solution).
Poster Presentations
If your abstract is accepted, please note the following:
- Posters will be mounted on a 6’ x 4’ board. Poster can be 6’ by 4’ or less in size.
- No tables will be available for tabletop poster displays.
- A panel of nurse researchers and practitioners will review submissions.
- The primary author will receive a $75.00 discount for the full Conference registration or $25.00 for a one-day registration.
Essential Elements of an Abstract

• Title
• Author(s)
• Background/Rationale
• Purpose of research or project
• Methods/Design and Sample
• Findings/Results
• Interpretation, Implications and Conclusions
Title

- Critical for a reviewer
- Key words that answer what and who; why, where, when, and how
- Clear and concise
- Reflect the overall aims and themes of the conference
- Punchy/funny title may be amusing, but it may not be clear what the content is of the presentation/poster
You examined differences between groups:

- “Decision-Making Differences Between Males and Females”
- “Variables Affecting Decision-Making among Males and Females”
- “Women are from Venus, Men are from Mars”
Author(s)

- Everyone who is involved from the most active worker to the least
- Presenting author listed first
- Affiliations (relevant to the project) and contact information
- All authors must approve the abstract and give permission to submit
- Disclosures may be included here, if requested
Improving Intravenous Heparin Infusion Administration and Monitoring: A Multidisciplinary Approach

Deborah G. Klein, MSN, RN, ACNS-BC, CCRN, CHFN, FAHA
Catherine Skowronsky, MSN, RN, ACNS
Theresa Cary, MSN, RN, ACNS-BC, CCRN, CHFN
Michael Militello, PharmD
Robert Patrick, MD
Aaron Hamilton, MD, MBA
Jennifer Goodman, MT, ASCP
Ingrid Raulinatis, BS

Cleveland Clinic, Cleveland, OH
Background/Rationale

• One or two simple opening sentences that describe why problem/issue is important
• Define health problem or concern
• Avoid global statements such as “Heart disease is the number one cause of death in America”
Background/Rationale

Intravenous heparin, a high risk medication, accounted for 90% of anticoagulation event reports in our institution in a one year period. Further examination identified inconsistent practices in physician ordering, RN administration, and anticoagulation monitoring that resulted in significant fluctuations in aPTT and delays in achieving therapeutic ranges.
Purpose of Research or Project

• Reason for the research or project
• One sentence that states
  • topic of the study
  • type of subjects studied
  • main variables
• "The purpose of this study was...
• Ensure that the purpose is limited to the findings
Purpose

The purpose of this research project was to improve the overall safety and effectiveness of intravenous heparin administration through enhanced technology, improved workflow and local accountability. In addition, the goal was to reduce time to initial therapeutic aPTT values and increase overall time patients spend in therapeutic range.
Methods/Design and Sample

• One or two sentences that explain how research was done
  • Adds clarity by informing reviewer the approach of the study and what to expect in the results
• Research design
  • Examples: prospective or retrospective, randomized clinical trial, observational, repeated measures
Methods/Design and Sample

- Sample
  - Sample size, descriptors (gender, age, diagnosis, place of residence)

- Data collection tools
  - Scales or methods used for recruitment
Methods/Design and Sample

A multidisciplinary team followed an aPTT blood sample from bedside, through laboratory analysis, posting of the result, and heparin dose adjustment by the RN. Based on this information, new weight based heparin nomograms, an electronic heparin dose calculator, electronic RN dual sign off functionality, priority and timed phlebotomy draws, a new laboratory aPTT designation (PTTAC), and enhanced communication to RN when PTTAC results are posted were implemented. Data extracted from the EMR on adult patients who were on IV heparin infusions for treatment of venous thromboembolism from January 2010 - March 2012 determined baseline performance and measured the impact of these interventions.
Findings/Results

• State what you found (facts/data only)
• Describe study subjects with actual numbers and percentages
• Include relevant statistics (odds ratios, confidence intervals, \( p \) values)
• Include relevant data, primary outcomes, key secondary outcomes, and significant adverse events
• All results presented should be introduced in the purpose statement
Findings/Results

After exclusions were applied, 4790 patients in the pre-intervention group and 2650 patients in the post-intervention group were analyzed. Post-intervention, the proportion of patients who were therapeutic within 24 hours increased 13.5% and median time to therapeutic aPTT decreased by 17.1%. Post-intervention, the proportion of time spent inside the therapeutic range increased 11.7%. Safety analysis revealed no statistical difference in rates of major bleeding.
Interpretation, Implications and Conclusions

• Describe how your research made a difference in nursing practice or further the knowledge base in two sentences (the “so what?” question)
• Concisely summarize main findings (one sentence)
• State clinical implications (second sentence)
• “Our study showed...”
• Do not repeat data or state “further research is needed.”
• Avoid broad claims; be specific and focused on your findings and what they mean
The use of weight based heparin nomograms standardized the physician ordering process. Implementation of a heparin dose calculator and timed phlebotomy draws improved timeliness of dose adjustments. An electronic notification system provided the RN with real-time notification when PTTAC results were posted. RN dual sign off verified intravenous heparin dose adjustments and boluses.
Common Pitfalls

- Poorly written abstract
- Errors (spelling, grammar, typographical)
- Abstract submission guidelines not followed
- Word limit exceeded
- Waiting until the last minute to start
- Missed deadlines
Introduction: With the increasing number of older adults “aging in place” older adults are at risk for falls in their homes. Person and environment factors can contribute to a situation that may result in injury. The result of falling can be detrimental to one’s health and quality of life as it may result in prolonged hospitalization.

Objectives: To develop an in-home falls program to reduce the incidence of falls in the elderly.

Methods. Participants met with an occupational therapist to learn about home safety techniques on a weekly basis over a three month period. They used the Falls-Reduction Inventory to educate seniors on possible home hazards.
• **Results:** Twelve seniors participated in the project. Participants completed an initial evaluation of hazards in their home and then worked with the OT to develop solutions to reduce the risk of falls. A total of 88 home hazards were identified by the participants. Interviews with the older adult participants suggested that they felt more capable of identifying risks in their home environment.

• **Conclusion:** The results of this project support the involvement of occupational therapists in working with seniors on falls prevention in their home.
Introduction: With the increasing number of older adults “aging in place” older adults are at risk for falls in their homes. Person and environment factors can contribute to a situation that may result in injury. The result of falling can be detrimental to one’s health and quality of life as it may result in prolonged hospitalization.

Review
Highlights the issue of falls in older adults.
Problem not clarified.
No description of previous work/background.
Description of gaps would help justify need for this project
Avoid quotes “aging in place”
Objectives: To develop an in-home falls program to reduce the incidence of falls in the elderly.

Review
Clearly stated.
Is this the true objective?
By reading the Methods, it appears that the project was not about program development.
**Methods:** Participants met with an occupational therapist to learn about home safety techniques on a weekly basis over a three month period. They used the Falls-Reduction Inventory to educate seniors on possible home hazards.

**Review**
Methods not linked to the objectives.
How were the interviews used and analyzed?
How was the data collected?
What is the Falls-Reduction Inventory?
More information needed to help reader understand how it was used in this project.
Results: Twelve seniors participated in the project. Participants completed an initial evaluation of hazards in their home and then worked with the OT to develop solutions to reduce the risk of falls. A total of 88 home hazards were identified by the participants. Interviews with the older adult participants suggested that they felt more capable of identifying risks in their home environment.

Review

Content belongs in Methods.

Results are presented, but difficult to interpret as they do not link to the Methods.
**Conclusion**: The results of this project support the involvement of occupational therapists in working with seniors on falls prevention in their home.

**Review**

Final statement not entirely consistent with objectives making it difficult to determine whether project was successful. It is not clear how results will contribute to knowledge. A stronger statement is needed.
Objectives: To develop an in-home falls program to reduce the incidence of falls in the elderly.

Results: Twelve seniors participated in the project. Participants completed an initial evaluation of hazards in their home and then worked with the OT to develop solutions to reduce the risk of falls. A total of 88 home hazards were identified by the participants. Interviews with the older adult participants suggested that they felt more capable of identifying risks in their home environment.
Five “C’s” of Abstract Construction

• Clarify goals/objectives
• Compare idea with conference theme
• Compose abstract to be readable, well-organized, jargon-free, concise, cohesive with smooth transitions, complete
• Comply with rules (length, word count, content/sections, order, keywords)
• Confirm/review all processes (submission requirements, process/evaluation criteria, deadline)
Tips for Success

• Allow adequate time to write, rewrite, and edit again
• Compose first draft with no consideration of word limit
• Ensure draft reviewed by coauthors for completeness, logical flow, spelling and grammatical errors, and correct font and size
• Do not mix tenses
• Avoid jargon (“pushing fluids”)
• Avoid adjectives and adverbs
Final Thoughts

• Abstracts are the readers’ first impression of your work
• Acceptance is competitive, however understanding the expected content of an abstract, following the abstract submission guidelines, and tips for skillful writing will improve the chance of acceptance
Posters: So you got accepted, now what?

Sandra Siedlecki, PhD, RN, CNS
Senior Nurse Scientist
Cleveland Clinic
Showing off your work
Simulations of Polymer Networks with a Bimodal Chain Length Distribution

Dhananjay Bhave, Claude Cohen and Fernando Escobedo
School of Chemical and Biomolecular Engineering

We have conducted molecular simulations of end-linked polymer networks with a bimodal chain length distribution. Short and long chains with lengths differing by an order of magnitude make up a typical network. Such networks have been experimentally demonstrated to have superior mechanical properties (modulus and toughness) as compared to the corresponding unimodal networks. The causes of this enhancement are not well understood. It is also not clear which combination of chain molecular weights in what proportion will yield this improvement. We have systematically explored networks with a range of chain lengths in varying proportions to explore the causes of mechanical enhancement and to optimize mechanical properties. Two possible reasons for better mechanical properties have been proposed in the literature: finite extensibility of the short chains and clustering of short chains. When the short chains are so short as to be non-Gaussian, they reach their maximum extensibility at smaller deformations than longer chains – this makes the network more difficult to deform and hence stronger. Also, short chains tend to cluster when they contribute most of the molar fraction in the network while the long chains contribute most of the volume fraction – short chain clusters act as reinforcing regions to make the network stronger. We changed chain lengths and proportions of long and short chains to explore all combinations of the following scenarios: clustered and non-clustered short chains and Gaussian and non-Gaussian short chains. We also looked at the microscopic structure of the various networks and studied bond breakage. We conclude from the study that the main reason for the mechanical enhancement is the finite extensibility of short chains and that clustering protects short chains from excessive deformation but does not improve mechanical properties.
Follow the Guidelines

- Size of poster
  - 4 X 6 versus 4 x 8 or 6 X 8
- Set-up time and removal time
- Supplies
  - What do they provide and what must you bring?
    - Be prepared, have tape, and push pins
- Tables or poster board
Objectives

• At the end of this presentation (workshop) the nurse will be able to
• Identify how to format a title and author information on a poster that catches the attention of your audience
• Select color, font, and format that results in an easy to read and follow display
• Identify the best use of tables and graphics to enhance your poster
• Critique poster displays using a grading scale
Start at the top: Your Title

• You have 10-11 seconds to grab the attention of your audience
• Your title is your “calling card”
Titles

• **DON'T** write an overlong title.
  • Titles that use excess jargon are a bore.
  • Titles with colons in them are a bore.
  • Titles that are too cute are even more of a bore.

PGH-BS & MSG: A Randomized Controlled Clinical Trial
Titles

• **DON'T** write an overlong title.
  • Titles that use excess jargon are a bore.
  • Titles with colons in them are a bore.
  • Titles that are too cute are even more of a bore.

SOUND OF MUSIC: A STUDY OF NURSES USE OF MUSIC FOR PATIENTS WITH CHRONIC PAIN WHO RATE THEIR PAIN AS 8 OR MORE
Titles

• **DO** keep your title short, snappy, and on target.
  • The title needs to highlight your subject matter, but need not state all your conclusions.
  • Some good titles simply ask questions. Others answer them.
Titles

• **DO** keep your title short, snappy, and on target.
  • The title needs to highlight your subject matter, but need not state all your conclusions.
  • Some good titles simply ask questions. Others answer them.

*Does Music Decrease Pain?*
• DON'T make the title type (Font) size too LARGE or too small.
Titles

• **DO** make your title large enough to be read easily from a considerable distance (25-50 feet)
  • The title should not exceed the width of your poster area and should never occupy more than two lines.
  • If things don't fit, *shorten the title*; don't reduce the type (font) size.
  • **TITLES IN ALL CAPITAL LETTERS ARE HARDER TO READ.**
  • Use **Bold Font and Both Upper and Lower Case Letters**
Proclaim Authorship

• DON’T leave people wondering about who did this work.
  • Put the names of all authors and institutional affiliations just below your title.
  • Include first names rather than initials.

• DON’T use the same large type size as you did for the title
  • Use something smaller and more discreet, but do not make the font so small that it is hard to read.
Layout includes planning
Lack of planning confuses
Font Selection

• **DON’T** use too small a type size for your poster. *This is the single most common error.*
  • Never, ever, use 10- or 12-point type.
  • Don't use it in your text, *anywhere*.
    • Don't use it for captions.
    • Don’t use it for figure legends, and annotations, footnotes, subscripts, or anything else.
  • Remember, no one ever complained that someone's poster was too easy to read.
Font Selection

• **DO** use a type size that can be read easily at a distance of 3-4 feet or better.
  • You do want a large crowd to develop around your poster, don't you?
• For text, 20-point type is about right
  • Not enough space to fit all your text?
  • Then shorten your text!
Font Selection

• **DON’T** pick a font that's difficult to read.

• **DON’T** get too creative in your typeface selections:
  • No one wants to struggle through a poster in Linotext

Linotext - 1042

Aa Bb Cc Dd Ee
Ff Gg Hh Ii Jj Kk
Ll Mm Nn Oo Pp
Qq Rr Ss Tt Uu
Vv Ww Xx Yy Zz
0 1 2 3 4 5 6 7 8 9
Font Selection

**Sans-serif** fonts are more difficult to read.

**Serifs** help guide the eye along the line and have been shown in numerous studies to improve both readability and comprehension.

The small decorative lines on the end of each character are called Serifs.
Font Selection

Equally hard to read are most mono-spaced fonts such as Courier.

- Courier is harder to read and gets boring.

Compare these two fonts
Font Selection

- **DON'T** vary the type sizes and/or typefaces excessively throughout the poster.
  - For example, don’t use something different for every bit of text and graphics.
- **DO** design your poster as if you were designing the layout for a magazine or newspaper.
  - Select fonts and sizes that work together well. Strive for consistency, uniformity, and a clean, readable look.

Be consistent *do not* jump all over with different fonts
Layout

- **DO** lay out the poster segments in a logical order, so that reading proceeds in some kind of linear fashion from one segment to the next, moving sequentially in a raster pattern.
- The best way to set up this pattern is columnar format, so the reader proceeds *vertically first*, from top to bottom, then left to right.
Layout: Neat and Organized
White space is your friend
Color

**DON'T** use gratuitous colors. Colors attract attention but can equally well detract from your message when misused. Fluorescent (neon) color borders just don't cut it for posters; and neither do excessive variations in color (the rainbow look). Avoid paisley, tie-dye, stripes or polka dots.

In your graphic items, use color with deliberation; avoid using it for its own sake.
Be careful with the primary colors
Color: Black is Best

- Blue on red is blurry
- Yellow on white is hard to see
- Red on Blue is blurry

Avoid busy or dark backgrounds.

Use light backgrounds with black or dark text.
Be aware of busy backgrounds
Neon and Primary Colors
Content

• Identify the problem
  • Do not put your entire abstract into your poster
• Include a purpose statement
  • Identify the research questions, specific aims, or hypotheses (not all three)
• Explain the design and measures used
  • One sentence should suffice
• Explain the analysis used
  • Describe the sample in a table
  • Provide the findings
• End with the implications for practice
Keep it Simple

DON’T ever expect anyone to spend more than 3-5 min (tops!) at your poster.
  • If you can't clearly convey your message pictorially in less time than this, chances are you haven't done the job properly.

DO get right to the heart of the matter.
Keep it Simple

• A poster is not a worked-over manuscript.
• Do not include long tables
  • no one has the time or inclination to wade through these
• Do not lift long sections of text directly from a manuscript and use it as a part of your poster.
Graphs and Tables

• These are to augment your poster and add visual interest
• They must make sense though
# A really bad table

## Table 5

Simulation results for using full data, CRs only, and proposed method under four missing mechanisms

<table>
<thead>
<tr>
<th>Method</th>
<th>Bias$^a$</th>
<th>Variance$^b$</th>
<th>95% CI$^c$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>($\hat{\beta}_W$)</td>
<td>($\hat{\beta}_X$)</td>
<td>($\hat{\beta}_W$)</td>
</tr>
<tr>
<td>Full</td>
<td>0.01346</td>
<td>0.02229</td>
<td>0.04008</td>
</tr>
<tr>
<td>Comp</td>
<td>0.03062</td>
<td>-0.003561</td>
<td>0.1149</td>
</tr>
<tr>
<td>Impu</td>
<td>0.01431</td>
<td>0.021</td>
<td>0.04088</td>
</tr>
</tbody>
</table>

**(M.1) $P(R = 1) = 0.66$**

| Full   | 0.007908 | -0.02116    | 0.03838    | 0.03624    | 0.975  | 0.925  |
| Comp   | 0.01945  | 0.07096     | 0.107      | 0.06581    | 0.960  | 0.950  |
| Impu   | 0.006966 | 0.01597     | 0.04227    | 0.05226    | 0.975  | 0.985  |

**(M.2) logit $P(R = 1) = 2Y$**

| Full   | 0.007908 | -0.02116    | 0.03838    | 0.03624    | 0.975  | 0.925  |
| Comp   | 0.01225  | 0.0589      | 0.08856    | 0.06818    | 0.980  | 0.975  |
| Impu   | 0.009563 | -0.04699    | 0.03865    | 0.04923    | 0.985  | 0.970  |

**(M.3) logit $P(R = 1) = 2X$**

| Full   | 0.01346  | 0.02229     | 0.04008    | 0.03685    | 0.955  | 0.950  |
| Comp   | 0.02404  | 1.613       | 0.1102     | 0.08202    | 0.955  | 0.580  |
| Impu   | 0.01814  | 0.08289     | 0.0578     | 0.06075    | 0.955  | 0.970  |

$^a$Bias $= (\hat{\beta} - \beta_0)/\beta_0$.

$^b$Simulation variance.

$^c$Confidence interval using jackknife standard error.
A poor use of Graphs

Figure 3. Percent of PM$_{2.5}$ composition by component for yearly, winter, and summer averages, by region.
Bad graph
Better
Images and graphs say much more than words.
Anything else?

- Come prepared with reprints of any of your own relevant papers that you might have, plus extra copies of any material you may wish to share
- Have ready some business cards
- Posters are a terrific way to get scientific suggestions and meet like-minded individuals.
Prepare mini size poster handouts

Provides a written record for interested folks

Be sure to include complete contact information
First Try

• What is Good, Bad, or Ugly about the following posters and why?
Southern Flounder Exhibit Temperature-Dependent Sex Determination

J. Adam Luckenbach*, John Godwin and Russell Borski
Department of Zoology, Box 7017, North Carolina State University, Raleigh, NC 27695

Introduction
Southern Flounder (Paralichthys lethostigmus) support valuable fisheries and show great promise for aquaculture. Female flounder are known to grow faster and reach larger adult sizes than males. Therefore, information on sex determination that might increase the ratio of female flounder in aquaculture is important for aquaculture.

Objective
This study was conducted to determine whether southern flounder exhibit temperature-dependent sex determination (TSD), and if growth is affected by rearing temperature.

Methods
- Southern flounder (Paralichthys lethostigmus) were strip spawned to collect eggs and sperm for in vitro fertilization.
- Hatched larvae were reared from a natural diet (Brine shrimp Artemia) to high protein pellets (Coppens) and fed until satiation at least twice daily.
- Upon reaching a mean total length of 10 mm, the juvenile flounder were stocked at equal densities into one of three temperatures 18, 21, or 28°C for 245 days.
- Gonads were preserved and later sectioned at 2.6 microns.
- Sex distinguishing markers were used to distinguish males (spermatogenesis) from females (oogenesis).

Histological Analysis

Temperature Affects Sex Determination

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>% Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>10</td>
</tr>
<tr>
<td>21</td>
<td>40</td>
</tr>
<tr>
<td>28</td>
<td>80</td>
</tr>
</tbody>
</table>

Growth Does Not Differ by Sex

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Body Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>40</td>
</tr>
<tr>
<td>21</td>
<td>60</td>
</tr>
<tr>
<td>28</td>
<td>40</td>
</tr>
</tbody>
</table>

Results
- Sex was discernible in most fish greater than 120 mm long.
- High (28°C) temperature produced 4% females.
- Low (18°C) temperature produced 24% females.
- Mid-range (23°C) temperature produced 44% females.
- Fish raised at high or low temperatures showed reduced growth compared to those at the mid-range temperature.
- Up to 245 days, no differences in growth existed between sexes.

Conclusions
- These findings indicate that sex determination in southern flounder is temperature sensitive and temperature has a profound effect on growth.
- A mid-range rearing temperature (23°C) appears to maximize the number of females and promote better growth in young southern flounder.
- Although adult females are known to grow larger than males, no difference in growth between sexes occurred in age-6 (6-1 year) southern flounder.

Acknowledgements

*Corresponding Author
Using a Windbreak Habitat Model Across Broad Landscapes: The Effect of Local Landscape Composition and Geographic Location

George Hess1, John Poulsen2, Raymond O’Connor3, Jeff Bay3

1. Windbreaks as Habitat

- Agronomic basis: 100 meters, crops, and wind - an essential component of windbreaks. By 1970, many states had begun regulating windbreaks to protect wind-borne pests, dust, and litter from windbreaks.

- Nebraska’s Agricultural Landscape: A windbreak is a natural or man-made barrier that can reduce wind speed and help control wind erosion.

- Nebraska’s Agricultural Landscape: birds and species richness

2. Regional Evaluation of Windbreaks

- We developed a windbreak model to predict species richness and species composition within and around windbreaks.

- Our model was tested in the Nebraska Agricultural Landscape, with a focus on the impact of windbreaks on species richness and species composition.

3. Bird Species Richness Index

- We used the U.S. Fish and Wildlife Service’s Bird Species Richness Index (BSRI) to estimate the number of bird species within and around windbreaks.

- Using photographs and field observations, we estimated the number of bird species within and around windbreaks.

4. Validating BSRI Model

- In 1998, we tested the model on a subset of the windbreaks in Nebraska. The model was validated by comparing observed and predicted species richness within and around windbreaks.

5. Results of Validation

- The model accurately predicted the number of bird species within and around windbreaks.

- We observed that the model performed best in areas with higher windbreak density.

6. Failure of the Model

- Failure to predict species richness within and around windbreaks.

- The model underestimated species richness within and around windbreaks.

7. Local Landscape-Scale Effects

- Local landscape-scale factors such as land use, habitat availability, and windbreak density significantly influenced species richness within and around windbreaks.

- The model accurately predicted species richness within and around windbreaks for different local landscape-scale factors.

8. Conclusions

- The model accurately predicted species richness within and around windbreaks.

- The model can be used to predict species richness within and around windbreaks for different local landscape-scale factors.

Acknowledgments: This study was funded in part by the National Science Foundation under Award No. 1234567. The data used in this study were collected through collaboration with the Nebraska Department of Agriculture and Natural Resources.
Determining the Wear Resistance of Occlusal Splints in a Prospective Clinical Study

P. Ottl, P. Schmelz, A. Piwowarzyk, H.-Ch. Lauer

School of Dentistry, University of the Saarland, Germany

Objective
- To determine quantitatively the wear resistance of a newly developed light-curing splint made from a new material over a period of six months.

Materials and Methods

- Patients
  - n = 21 consecutive patients (Sex: 14 females, 7 males)
  - Age: 42 ± 17 years

- Inclusion criteria
  - Natural dentition with at least one maxillary and mandibular molar
  - Full-mouth radiographs
  - No previous treatment
  - <10% of occlusion shown on panoramic radiographs

- Exclusion criteria
  - Malocclusion
  - Previous treatment
  - <10% of occlusion shown on panoramic radiographs

- Study design
  - Duration: 6 months
  - Type of splints
    - Resin splint
    - Composite splint
    - Stainless steel splint
    - Nickel-titanium splint
  - Splint wear time: 3 months
  - Examinations:
    - Baseline (Baseline 1)
    - At 6 weeks (Baseline 2)
    - 3 months (Baseline 3)
    - 6 months (Baseline 4)
  - Occlusal adjustments were maintained in the same order as before the study.

- Measuring technology (Fig. 2)
  - Vibration-controlled testing machine (VD-4, Gebr. 4, Schaffner)
  - Digital x-ray (Sirona, Siemens)
  - Digital x-ray (Sirona, Siemens)
  - Digital x-ray (Sirona, Siemens)
  - Digital x-ray (Sirona, Siemens)

- Statistical analysis
  - Mann-Whitney U-test, p < 0.05

Conclusions
- The wear resistance of the newly developed light-curing splint was statistically evaluated using a prospective clinical study.
- Good wear resistance is of great importance for maintaining the therapeutic mandibular position during the treatment period.
- Further studies are needed to evaluate the long-term wear resistance of splints made from different materials.
A Framework for Assessing the Condition of Agricultural Lands

Mission: To develop indicators of the condition of agricultural lands within an ecological framework, and to monitor and evaluate this condition on a regional basis.

Sustainable agriculture has been discussed, researched, and disseminated in various papers. Sustainability is characterized by social, economic, and environmental sustainability. Although these dimensions are interdependent, they must be balanced to avoid trade-offs.

The ecological condition of agricultural land is defined by its productivity and the degree to which biological diversity and ecosystem resources are conserved and preserved. Agricultural land in good condition is productive and does not compromise natural resources. Sustainability is the ability to maintain good conditions over time.

Potential Indicators for Annually Harvested Herbaceous Cropland

In a starting point, we chose to concentrate our efforts on developing indicators for annually harvested herbaceous cropland — land planted with crops that are harvested every year whether the plants are annual or perennial. Common examples are corn, wheat, soybeans, alfalfa, and clover.

We are encouraged by the potential, not that duplicative, even if conceptual frameworks. A robust ecosystemic framework is necessary to incorporate indicators based on data from various monitoring efforts. For example, an ecosystemic indicator could be developed through the USDA National Resources Conservation Service's National Resources Inventory data.

Fields are for crops . . .

. . . but landscapes are for all of us.

Authors/Contributors: The EMAF Agricultural Lands Research Group thanks the many individuals and organizations that made this effort possible.

1. North Carolina State University, Forestry Department, Raleigh NC
2. North Carolina Agricultural Research Service, Raleigh NC
4. USDA Agricultural Research Service, Raleigh NC
PREVALENCE OF OBESITY AMONG INNER CITY LATINO CHILDREN AND ADOLESCENTS

Nanu M. Maza MD, ScD; Jill Merchant MS; Leslie Baker PhD;
Children's National Medical Center and George Washington University School of Medicine and Health Sciences, Washington, DC

Background:
Obesity is a major health and public health problem facing children and adolescents in the US. It is of particular significance in the increasing prevalence of obesity among the Latino population, among the ethnic groups that is a strong ethnic or family and children are currently. Deprive of the processes that nóng khu, there may be biologically underprivileged that children would not find to be affected by the same factors which had not affected the older generation, nor were they affected by the same factors which had not affected the older generation. The obesity epidemic is a result of societal change, with many lifestyle factors. It will have consequences on the health care system.

Objectives:
To determine the impact of obesity among West Virginia Latino children and adolescents MFB that are at risk of obesity, and to evaluate the need for preventive health care programs.

Study Design:
A cross-sectional study was done in 2000. Data was collected from school-aged children and adolescents aged 6 to 19 years. The study was conducted in a 10 school sites in West Virginia. The data was collected 3.5% of the state's population. Information was collected on demographics, behavioral (physical activity, dietary), and health risk factors. The data was analyzed using descriptive and inferential statistics. The data was analyzed using descriptive and inferential statistics. The data was analyzed using descriptive and inferential statistics. The data was analyzed using descriptive and inferential statistics.

Results:
The prevalence of obesity among children was 33.7%. The prevalence of obesity among adolescents was 36.9%. The prevalence of overweight among children was 52.6% and that of adolescents was 57.4%. The prevalence of overweight among children was 52.6% and that of adolescents was 57.4%. The prevalence of overweight among children was 52.6% and that of adolescents was 57.4%. The prevalence of overweight among children was 52.6% and that of adolescents was 57.4%. The prevalence of overweight among children was 52.6% and that of adolescents was 57.4%. The prevalence of overweight among children was 52.6% and that of adolescents was 57.4%. The prevalence of overweight among children was 52.6% and that of adolescents was 57.4%. The prevalence of overweight among children was 52.6% and that of adolescents was 57.4%. The prevalence of overweight among children was 52.6% and that of adolescents was 57.4%. The prevalence of overweight among children was 52.6% and that of adolescents was 57.4%.

Conclusions & Recommendations:
The prevalence of obesity among children and adolescents aged 6 to 19 years is a major public health concern. The prevalence of obesity among children and adolescents aged 6 to 19 years is a major public health concern. The prevalence of obesity among children and adolescents aged 6 to 19 years is a major public health concern. The prevalence of obesity among children and adolescents aged 6 to 19 years is a major public health concern. The prevalence of obesity among children and adolescents aged 6 to 19 years is a major public health concern. The prevalence of obesity among children and adolescents aged 6 to 19 years is a major public health concern. The prevalence of obesity among children and adolescents aged 6 to 19 years is a major public health concern. The prevalence of obesity among children and adolescents aged 6 to 19 years is a major public health concern. The prevalence of obesity among children and adolescents aged 6 to 19 years is a major public health concern. The prevalence of obesity among children and adolescents aged 6 to 19 years is a major public health concern.
A Large-Scale Public Library Renovation in Taiwan

Library services of a UGC National Taichung Library of Taiwan

ABSTRACT

There are 921 public libraries, including 207 city libraries and 714 rural libraries, in Taiwan. However, some libraries are still using manual methods. In order to upgrade the quality of public library services, the government of Taiwan decided to introduce modernization. In 2002, the national government of Taiwan approved a budget of NT4.2 billion to modernize 350 public libraries in Taiwan.

National Taichung Library was designated as a model library to execute the project from February 2003 to June 2004. It was divided into eight groups according to the geographical area, and a steering committee was formed, consisting of committee members from the Public Library and Information Science, Architecture, Art Design, Libraries, and History. The committee members were selected in one of eight groups of 350 public libraries to help and to give suggestions for modernization, improvement, maintenance, and services of each library.

The project was executed and completed efficiently and effectively by June 2004. This poster presentation will display the results of the renovation, improvement, replacement, library management, and services of 350 public libraries in Taiwan. The contents of this poster will be updated by words, graphics, and related tables.

www.ntl.gov.tw
Overall Appearance
Introduction: Loss of diversity and total arthropod species richness and individual species richness increased with increasing genotypic diversity. The effect of genotypic diversity on community structure was not associated with the number of arthropod species associated with the corresponding genotypic diversity (GSI = 0.21) (Fig. 1).

Results: Total arthropod richness increased with plant genotypic diversity, and was 27% greater in 12-geneotype plots in angio-geneotype plots (Fig. 2).

We compared the standardized effect sizes (SES) of genotypic diversity to species diversity using data from the Cedar Creek LTER. The SES of plant genotypic diversity on both arthropod diversities (SES_p = 1.80 and ANPP (SES_p = 1.33) from our study were directly comparable to plant species diversity (SES_p = 0.93). (SES_p = 1.36).

Take-home: Our results highlight the need to incorporate intraspecific variation into current ecological theory that has emphasized the importance of interspecific variation. Given the focus of conservation efforts on how the loss of species from communities affects ecosystem processes, our work suggests that the loss of genotypes from populations can no longer be overlooked.

Nitroxyll (HNO): A new candidate drug therapy to combat heart failure

The Role of Phospholamban Cysteines in the Activation of the Cardiac Sarcoplasmic Reticulum Ca\(^{2+}\) Pump by HNO

Chevon N. Thorpe and James E. Mahaney
Virginia Tech — Department of Biochemistry—Blacksburg, VA
Edward Via Virginia College of Osteopathic Medicine — Blacksburg, VA

Purpose:
Elucidate the biochemical and molecular mechanisms by which HNO stimulates cardiac Ca\(^{2+}\) transport to establish HNO as a drug therapy to combat heart failure.

Consequences of heart failure:
- Congestive heart failure
- Systolic failure: inadequate pumping
- Diastolic failure: impaired relaxation and improper filling

Abnormal Ca\(^{2+}\) handling in the heart is a central player in the progression of heart failure.

Nitroxyll and skeletal Ca\(^{2+}\) ATPase

Techniques:
- Site-directed mutagenesis
- Immunoblot
- Malachite-green ammonium molybdate activity assays
- SDS-PAGE

Hypothetical:
There will be no effect on Ca\(^{2+}\) sensitivity in SERCA2 because phospholamban is not present.

Conclusion:
As HNO appears to have no direct activating effect on SERCA2 itself, supporting the proposal that activation of SERCA2 by HNO is PLN-dependent. The addition of HNO to create skeletal muscle does not affect the SERCA 2Ca\(^{2+}\) ATPase activity as seen in the assay. Preliminary data from SNAP experiments (data not shown) suggest that HNO changes the intracellular stability of SERCA, but it is not clear whether this is a change in domain mobility or several protein interactions.

Acknowledgments:
I would like to thank the following individuals for their valuable contributions and advice during the course of this study.
CHARACTERIZATION OF ENVIRONMENTAL ATTRIBUTES OF POTENTIAL LOST COLONY ARCHEOLOGY SITES USING SATELLITE BASED OPTICAL SENSORS, SYNTHETIC APERTURE RADAR, AERIAL LIDAR, AND GROUND PENETRATING RADAR

Abstract

Traditional methods of site detection rely on surface visibility and topographic features, which may not be sufficient for the discovery of lost colonies. The application of satellite imagery and remote sensing technologies can help identify potential sites. Furthermore, the use of LiDAR and ground penetrating radar (GPR) can provide high-resolution data for subsurface exploration.

ARCHAEOLOGICAL RESEARCH DESIGN

Phase 1: Background Research

- Identify potential sites using satellite imagery
- Review historical records and archaeological literature
- Conduct site reconnaissance

Phase 2: Remote Sensing

- Use LiDAR to create high-resolution topographic models
- Apply GPR to detect subsurface features

Phase 3: Ground Truthing

- Conduct field surveys to verify findings
- Collect samples for further analysis

ARCHAEOLOGICALInputStream

- Identify sites
- Validate findings
- Envision site development plans

MAPS

- LiDAR maps
- GPR images
- Satellite imagery

CONCLUSION

The study demonstrates the potential of satellite and remote sensing technologies in identifying and verifying potential lost colony sites. Further research is needed to refine the methodologies and improve the accuracy of site detection.

Major Crops

- Corn
- Soybeans
- Wheat
- Barley

Soil Description

- Clay loam
- Sand
- Silt

Soil Conditions

- Wet
- Dry
- Moist

Elevation

- Low
- High
- Variable

Vegetation

- Grassland
- Woodland
- Shrubland

Archaeological Features

- Ruins
- Foundations
- Artifacts

Archaeological Significance

- Historical
- Cultural
- Scientific

Research Team

- Renesha Lucas
- Malcolm Mathis
- Junice Smith

Metro Team

- Dr. Anna Garfand
- Dr. Malcolm LeCouturie
- Dr. Francisco San Juan
- Mr. Fred Willard
- Dr. Lei Zhang

Apparatus

- Satellite Imaging
- Synthetic Aperture Radar
- LiDAR
- GPR

Data Acquisition

- High-resolution satellite imagery
- LiDAR data
- GPR data

Analysis Techniques

- Image processing
- Feature extraction
- Statistical analysis

Mapping Techniques

- GIS
- Remote sensing
- Archaeological site modeling
ABSTRACT:

One crucial benefit of eating less is a potential reduction in obesity, a chronic problem for a growing majority in many parts of the world. In theory, when an individual is in a condition of two gravity, weight is eliminated. Indeed, in space the centrifugal force is about 100 times that of gravity, which results in weightlessness. In this study, we examined the effect of zero gravity on pig weight gain. Our results showed that pigs fed ad libitum feeding gained weight at a rate of 1.5 times that of normal gravity. These results suggest that the physiological mechanisms are similar in both conditions.

INTRODUCTION:

The current obesity epidemic started in the early 1970s with the invention and proliferation of fast food and reduced exercise options. Many experts believe that the combination of these factors has led to a rise in obesity rates. In order to study the effects of zero gravity on pig weight gain, we designed an experiment that involved feeding pigs ad libitum while in a condition of two gravity. The results showed that pigs fed ad libitum gained weight at a rate of 1.5 times that of normal gravity.

RESULTS:

The mean weight of pigs in space was 0.0350 ± 0.0002 kg, while the mean weight of pigs in normal gravity was 0.0260 ± 0.0002 kg. The results showed a significant increase in weight gain in the space condition compared to the normal gravity condition.

CONCLUSIONS:

Our results suggest that pigs fed ad libitum gain weight at a rate of 1.5 times that of normal gravity. These results provide insights into the physiological mechanisms underlying weight gain under conditions of two gravity. Further studies are needed to understand the underlying mechanisms and to develop strategies to prevent weight gain in space.

ACKNOWLEDGEMENTS:

This study was supported by NASA grants NNX08AM17G and NNX09AB45G. We would like to thank Dr. John Smith for his valuable contributions to the study. We are also grateful to the pig farmers who provided us with the pigs.

LITERATURE CITED:

Automatically Fine-Tuning the JIT in a Java Virtual Machine

Kenneth Hoste, Andy Georges and Lieven Eeckhout
{kenneth.hoste, andy.georges, lieven.eeckhout}@ugent.be
Ghent University, Belgium

Problem statement
- A JIT compiler relies on a set of increasingly aggressive optimizations to achieve good performance
- Only hot methods are compiled to higher optimization levels
- Deciding which optimizations to enable at each level is hard
- Large search space due to a large number of available optimizations
- Complex interactions between optimizations
- Subtle dependencies between optimization levels
- Current practice: time-consuming and suboptimal

Goal of this work
- Automatic fine-tuning of the JIT configuration in a Java VM
- Achieve at least the same performance as labor-intensive manual tuning
- Evaluate the framework in a statistically rigorous way
- Very important because of non-determinism
- Enables tuning the JVM for a particular target, e.g., specific hardware platform(s)

Step 1: Pareto-optimal optimization plans
- The purpose of this first step is to obtain a set of candidate optimization plans.
- Using an evolutionary search strategy
- Tradeoff compilation time (bar) vs. speedup over no optimization
- Select a subset of optimization plans that maximizes spread across Pareto optimal plans
- This exploration results in a set of plans that are competitive to the default configuration
- One important observation is that there is no monotonic increase of optimizations being used

Step 2: Pareto-optimal configurations
- Tuning for a set of target applications
- Using the DeCapo benchmarks
- Up to 0.99% and 3.4% performance improvements
- Conclusion: fully automatic
Questions are guaranteed in life; Answers aren't.