UBC SHARC 2016 Workshop

Creating and delivering a 1 min 1 slide lightning presentation

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Science Communication

Tips for effectively sharing your research

Part 4: Creating & delivering a 1 min 1 slide lightning presentation

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What is the purpose of a 1 minute 1 slide lightning presentation?
Components of a (lightning) talk

1. Information
2. Supporting Visuals
3. Delivery
What should you present?

How should you present it?
What info should you present?

1. Know your audience
2. Distil your research
3. Make it interesting
1. Know your Audience

Who?

What?

When?

Where?
Cardiac performance of perfused crucian carp hearts during anoxia

Linda Halasz
University of British Columbia

Kåre-Olav Stensland
(Tony) Farrell¹, Gradient Systems
Jonathan Grantham
University of British Columbia

How do carp survive without oxygen?
2. Distil your research

- Focus on the important stuff
- Eliminate superfluous detail
- Lead the listener
- 1 take home messages
- Say NO to methods
- Don’t introduce confusion
2. Distil your research

• What is the problem?
• Who is affected?
• What solutions do you offer?
• What difference will it make?
• Why should we care?

Photo: Roger Ferrer Ibáñez flickr
In this study we characterized the properties of two types of adrenergic receptors that regulate cardiac function. We found that receptor A XZ2 is up regulated after acute myocardial infarction when compared with receptor HXQ-DD. Receptor A XZ2 is one of the targets of Long-drug-name which is commonly administered post-infarction to help prevent myocardial damage. We compared the effectiveness of long-name-drug to other-name-drug and discovered that…

We want to find the best way to prevent the heart from being damaged by a heart attack.
3. Make it interesting

Engaging title
but appropriate

Tell a story

Get excited

Limited time

Be yourself
Examples

Cardiac performance of perfused cucian carp hearts during anoxia

The cucian carp, the true champion of anoxia

Linda Hanson
University of British Columbia

Kåre-Olav Stensløkken, Anthony (Tony) Farrell, Göran Nilsson & Jonathan Stecyk
University of Oslo
How do you present your work?

1. Supporting visuals – single slide
2. Delivery of information
Think visually – your slide

Font choice

White space

Images

No distractions

Do you think that anyone can actually read the tiny, tiny font... or that they want to spend 20 minutes reading one poster?

Summarize

Readability
The *in situ* perfused heart

- This is a slide where we explain the methodology with a huge block of text.
- It is really time consuming to read and the audience is likely to either stop listening to you while they read it or their attention is liable to start wandering.
- Are you even still reading the text at this point?
- Do you have any idea what the speaker is saying at this point?
The *in situ* perfused heart

Cardiac power output = flow x pressure generated
(i.e. ATP demand)
Examples

Can you read this itty bitty text? You should avoid using fonts sizes <24 point. Seriously, even for axis labels.

**What about this red text on a blue background? Do you have a headache yet?**

**If that doesn’t do it maybe this one will!**

**Red** and **green** are indistinguishable for some people. How legible are your slides if you use red and green to distinguish your treatment groups on your graphs?
Rescue of cardiac performance with adrenergic stimulation during hypoxia, acidosis and hyperkalemia in rainbow trout (Onchorhynchus mykiss)

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Introduction

- The rainbow trout heart relies primarily on lumenal circulation (venous blood)
- Lumenal circulation becomes hypoxia, acidic and hyperkalemic during strenuous exercise, factors that are highly detrimental to cardiac performance
- Nevertheless, the rainbow trout heart must maintain a high cardiac performance under these conditions
- We hypothesize that adrenergic stimulation plays a critical role in maintaining maximum cardiac performance under conditions of strenuous exercise (hypoxia, hyperkalemic and acidosis).
- In addition, we were interested in determining the hypoxic thresholds for cardiac collapse under hypoxia alone, and under strenuous exercise conditions with tonic and maximal adrenergic stimulation.

Technique – The Perfused Heart

- This in situ preparation isolates the heart in terms of perfusate delivery and collection while leaving the pericardium intact, allowing for assessment of maximum cardiac performance
- The input cannula is introduced into the sinus venosus via a hepatic vein and the output cannula is inserted into the ventral aorta (Farrell et al. 1986).

Experimental Procedure

- Maximum cardiac performance of in situ perfused rainbow trout hearts was assessed at 10°C under varying levels of hypoxia (94-40 torr), both alone and in conjunction with hyperkalemic (5 mM), acidic (pH 7.5) exposure.
- In addition, the hypoxic, hyperkalemic, acidic exposure was done with both tonic (5 nM) and maximal adrenergic stimulation (500 nM).
- Sequential 15 min perfusions were done for individual hearts as follows:
  1. Normoxia (150 torr O₂, pH 7.9, 5 mM adrenalin)
  2. Hypoxia (pH 7.5, 5 mM adrenalin)
  3. Recovery/normoxia (150 torr O₂, pH 7.9, 5 mM adrenalin)
  4. Strenuous exercise (hypoxic, 5 mM K⁺, pH 7.5, 5 mM adrenalin)
  5. Strenuous exercise with adrenergic stimulation (hypoxic, 5 mM K⁺, pH 7.5, 500 nM adrenalin)

- For experiments conducted below hypoxic thresholds hearts were not exposed to lethal steps.

Results & Conclusions

Hypoxia Alone

- Exposure to hypoxic perfusate ≤ 50 torr resulted in significant reductions in maximum cardiac performance
- In addition, full recovery upon return to normoxic conditions was not seen
- Exposure to hypoxic perfusate ≤ 20 torr was lethal, as the threshold for cardiac collapse under hypoxia occurred between 15-20 torr

Hypoxia, Hyperkalemia & Acidosis

- With tonic levels of adrenergic stimulation maximum performance during simulated strenuous exercise conditions was significantly decreased
- The threshold for cardiac collapse under the above conditions was between 35-50 torr, as exposure to perfusate ≤ 50 torr was lethal

Rescue With Adrenergic Stimulation

- Maximum adrenergic stimulation restored cardiac performance in hearts previously exposed to strenuous exercise conditions when P₅₀ ≥ 75 torr
- Maximal adrenergic stimulation protected cardiac performance during exposure where P₅₀ ≥ 75 torr, conditions that would otherwise be lethal
- However, even with adrenergic stimulation maximum performance was significantly decreased from that observed during normoxia.

Thresholds for cardiac collapse

- Hypoxia, hyperkalemia and acidosis: Following recovery (see above), maximum power of perfused rainbow trout hearts was assessed under specific levels of hypoxia (indicated on the x-axis), in conjunction with hyperkalemia (5 mM K⁺) and acidosis (pH 7.5) to simulate strenuous exercise conditions, first with tonic adrenergic stimulation (5 nM) and then with maximal stimulation (500 nM). Each P₅₀ value indicates a separate group of hearts (N=4-10). At P₅₀ levels ≤ 35 torr hearts were not exposed to the hypoxic, hyperkalemic, acidic saline with adrenergic stimulation. In addition, at P₅₀ levels ≤ 15 torr hearts did not receive prior exposure to hypoxia alone. Values are plotted as change from control ± SEM. *P < 0.05. Values plotted are change from control ± SEM. *P < 0.05. Values plotted are change from control ± SEM.

Take Home Message

Under conditions simulating strenuous exercise, adrenergic stimulation plays a critical role in maintaining cardiac performance, raising the threshold for cardiac collapse to hypoxic levels similar to those seen in vivo.

References

Farrell AP, MacLeod KR, Chorney B (1990) Hemodynamic properties of the perfused rainbow trout heart and the effects of catecholamines and non-cholesterol carbon monoxide and acetic acid.
Phipps 123:108-114.
Bad graph versus better graph

Bear et al. 2007

Daily relative growth rate (%) vs. Acclimation temperature for rainbow trout and cutthroat trout.
Bad graph versus better graph

Bear et al. 2007

Daily relative growth rate (%)

Acclimation temperature (°C)

Rainbow trout

Cutthroat trout
Delivering your presentation

• Speaking style: pacing, tone, inflection
• Speak naturally. Be yourself.
• Be enthusiastic
• Consistent language
• Respect the time limit!
• Make eye contact
• Body language
• Rehearse but don’t over rehearse!
SHARC Lightning Talk

• All talks in one session (~40)
• Format: 1 minute 1 slide
• Awards: Top Lightning Talk
  Honorable Mention
  People’s Choice
  Top Overall (poster + lightning)
SHARC Judging Criteria

• Slide design (organization, appearance)
• Presentation
  • Flow
  • Comprehension
  • Pacing
• Clear message
• Engaging
First name Last name

Your presentation title

Program: (e.g. Northern Medical Program)
Authors: (Author names as submitted on your registration form)
Guidelines

• Do not resize the slide or adjust the page margins
• The blue box below will be replaced by a countdown timer. Any images/text on this area of the slide will be obscured.
• We suggest leaving a 0.25” border of clear space on the slide to avoid the possibility of any images/text being cut off during projection. The grey box outlines this suggested margin but should be removed prior to submission.
• If you wish to use text we recommend a minimum text size of 24 pt and suggest using Arial, Calibri or a similar common font to ensure compatibility when your presentation is uploaded to the computers in the event room.
• No animations, sound or other dynamic content. Static images/text only.
Resources & Contacts

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