GRAPHICAL ABSTRACTS AND VISUALIZATIONS

PRESENTED BY LARISSA ROWDON & JAYNE MORRISH



AGENDA

- KNOWLEDGE VISUALIZATION
- WHAT IS A GRAPHICAL ABSTRACT?
- HOW TO CREATE A GRAPHICAL ABSTRACT AN OVERVIEW
- PRACTICAL CONSIDERATIONS (E.G., WHAT PROGRAM DO I USE? WHERE DO I START?)
- GRAPHIC DESIGN TIPS & TRICKS
- SHARING ON SOCIAL MEDIA
- EXAMPLE WALKTHROUGH



KNOWLEDGE TRANSLATION / MOBILIZATION

= dynamic and iterative, this includes the synthesis, dissemination, exchange, and ethically sound application of knowledge; the movement of knowledge into active use



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KNOWLEDGE VISUALIZATION?

A PICTURE IS WORTH A THOUSAND WORDS





What other examples of Knowledge Visualization can you think of?



A single image that appears alongside a written abstract



A single image that appears alongside a written abstract

 The viewer should be able to quickly and easily pick up the main idea and key outcomes of the article

Occupational Activities: Factors That Tip The Balance From Bone Accrual to Bone Loss



Persistent demanding loads while in awkward postures can lead to musculoskeletal disorders that include degenerative changes in bone.



Bone Loss

- Women > Men
- Older age
- Microcracks from loading
- Nerve injury
- · Elevated inflammation
- Stress/Anxiety
- · Low levels vitamin D
- Smoking



- Men > Women
- Young age
- Low loads and repetitions
- Strategies to reduce pain
- · Large muscle mass
- Aerobic physical activity





Need to define thresholds for tissue damage and restrecovery intervals that promote bone accrual.



Mary F. Barbe, Steven N. Popoff. ESSR. April 2020

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Exercise and Sport Sciences Reviews

Community Curling Clubs are a Vehicle of **Empowerment for Women in Rural Areas.**



Background



Rural women are often placed at a disadvantage as options for meeting the burden of maintaining health and wellbeing are more limited, especially in Canadian winters.

Emergent Themes





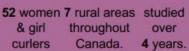
Managing not only physical health, but elements of social and mental health as well. was a dominant theme both in participants' pictures and their discussions with us.

Participants









Social Connection

Participants used clubs as a venue for socialising. Curling clubs are often one of only a few, if not the only, available spaces for adults to exercise and socialise during the winter in small communities (Mair, 2009)

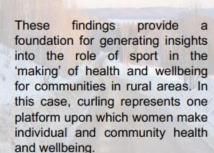
Methodology

generate focus group discussions.





Often the only organised winter activity, participants viewed clubs as community hubs. Participants also clearly saw themselves as playing an essential role in working to support and sustain their clubs, through hours of volunteering, fundraising and taking on leadership positions within the clubs.



Mair, H., Leipert, B. D., Scruby, L.S., & Meagher-Stewart, D. (2019). Making health and wellbeing: Sport and women's care in rural Canada, Journal of Rural Studies, 65: 90-98



Implications of Social Media on Women in Sport



How does user-generated content (UGC) from fans portray women in sport?



traditional media,

which tends to depict athletes' femininity/ sexuality

Pegoraro, A., Lebel, Katie. & Harman, A., (2019), Social media and women's sport: What have we learned so far in Lough, N., & Geurin, A.N.,eds, Routledge Handbook of the Business of Women's sport, N-Y.

How does social media impact women as sport journalists?





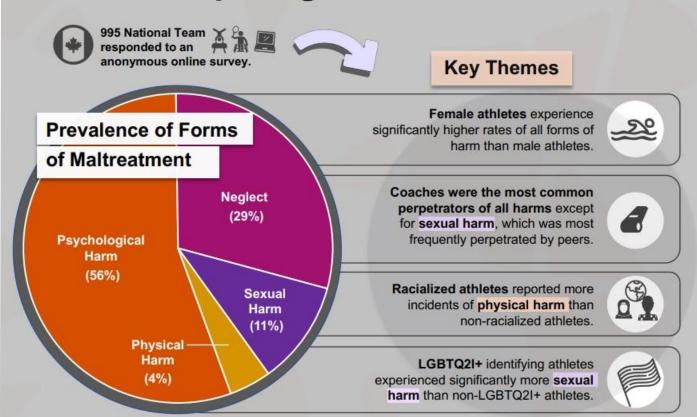
User engagement with sport brands on social media exacerbates maltreatment of women sport journalists.

Summary

Social media has the potential to strengthen gender equity by proliferating user-generated content in women's online sport communities. Its dangers lie primarily for women sport journalists, who are subject to increased gender-based maltreatment through online engagement.

Canadian Athletes Experience Maltreatment When Competing on National Teams.





Willson, E., Kerr, G., Stirling, A., & Buono, S. (2021). Prevalence of Maltreatment Among Canadian National Team Athletes. *Journal of Interpersonal Violence*.

Correlation Coefficients for Types of Harm

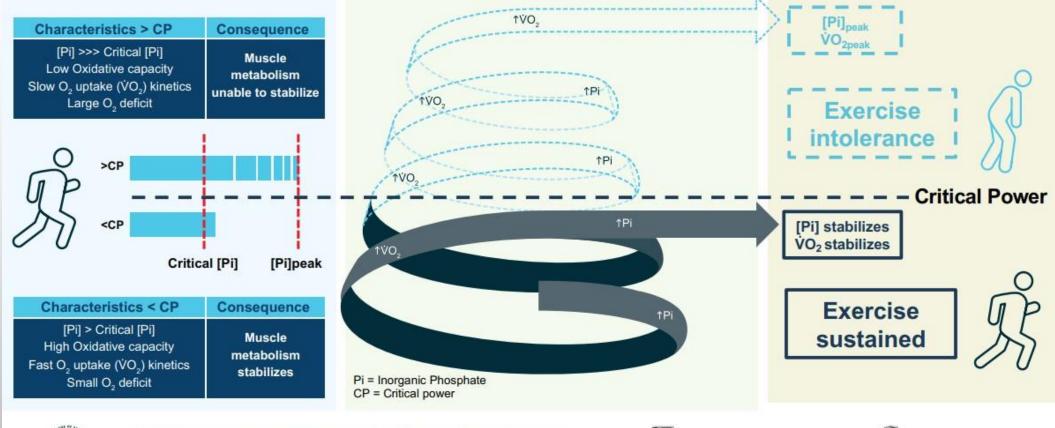
	Neglect	Psychological Harm	Physical Harm	Sexual Harm
Neglect		.498**	.305**	.503**
Psychological harm			.406**	.989**
Physical harm				.408**
Sexual harm				

Findings indicate significant positive correlations between various forms of maltreatment, suggesting that an environment that is conducive to one form of maltreatment is likely conducive to many others.

Conclusion

Characteristics of elite Canadian sport environments can leave athletes vulnerable to potentially harmful experiences. Future research and applied work should address ways in which the elite sport environment can be more positive, free from harms, and exemplify evidence-based methods of coaching to develop talent.

Bioenergetic Mechanisms Linking VO₂ Kinetics and Exercise Intolerance

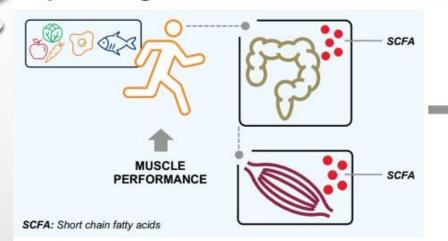


AMERICAN COLLEGE of SPORTS MEDICINE LEADING THE WAY Richie P. Goulding, Harry B. Rossiter, Simon Marwood, Carrie Ferguson. ESSR. October 2021

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Exercise and Sport Sciences Reviews

Optimizing Microbiota Profiles for Athletes



EXERCISE AND/OR DIETARY INTERVENTION



NON RESPONDERS

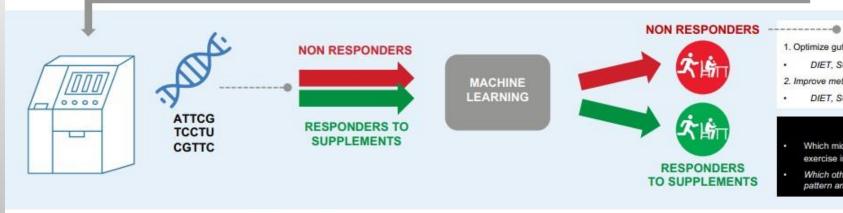
Greater improvement to same training/nutrition in:

- Body composition
- Maximal oxygen consumption
- Strength/power

RESPONDERS TO SUPPLEMENTS

Reduced improvement to same training/nutrition in:

- **Body composition**
- Maximal oxygen consumption
- Strength/power



INTERVENTIONS

- 1. Optimize gut microbiota through
- DIET, SUPPLEMENTS, PRE AND PROBIOTICS
- 2. Improve metabolic factors through
- DIET, SUPPLEMENTS

QUESTIONS

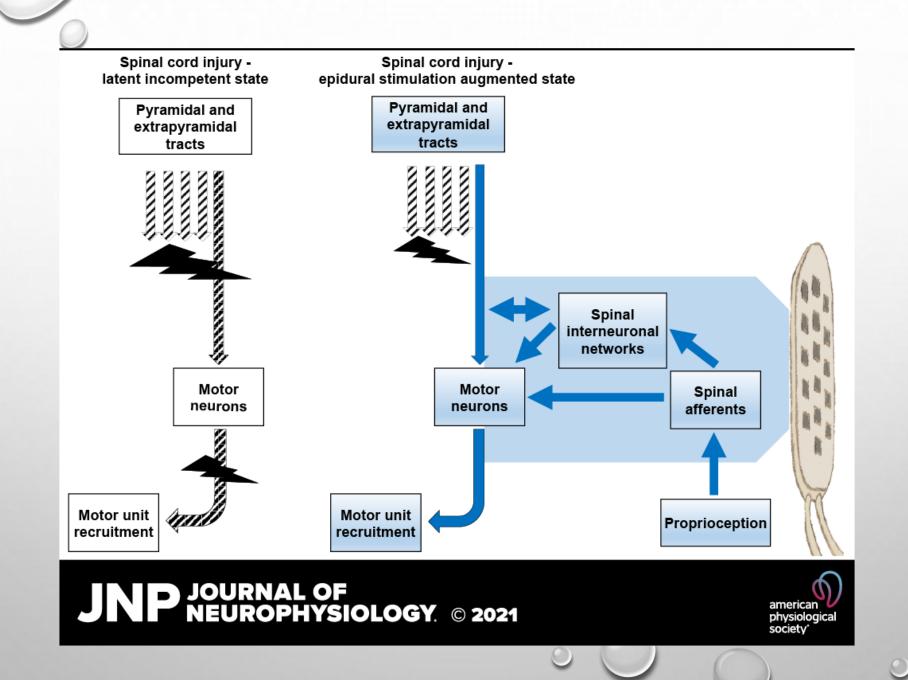
- Which microbiota pattern predicts a lower response to diet and exercise in non responders?
- Which other metabolic factors are linked to a specific microbiota pattern and lower exercise response in non responders?

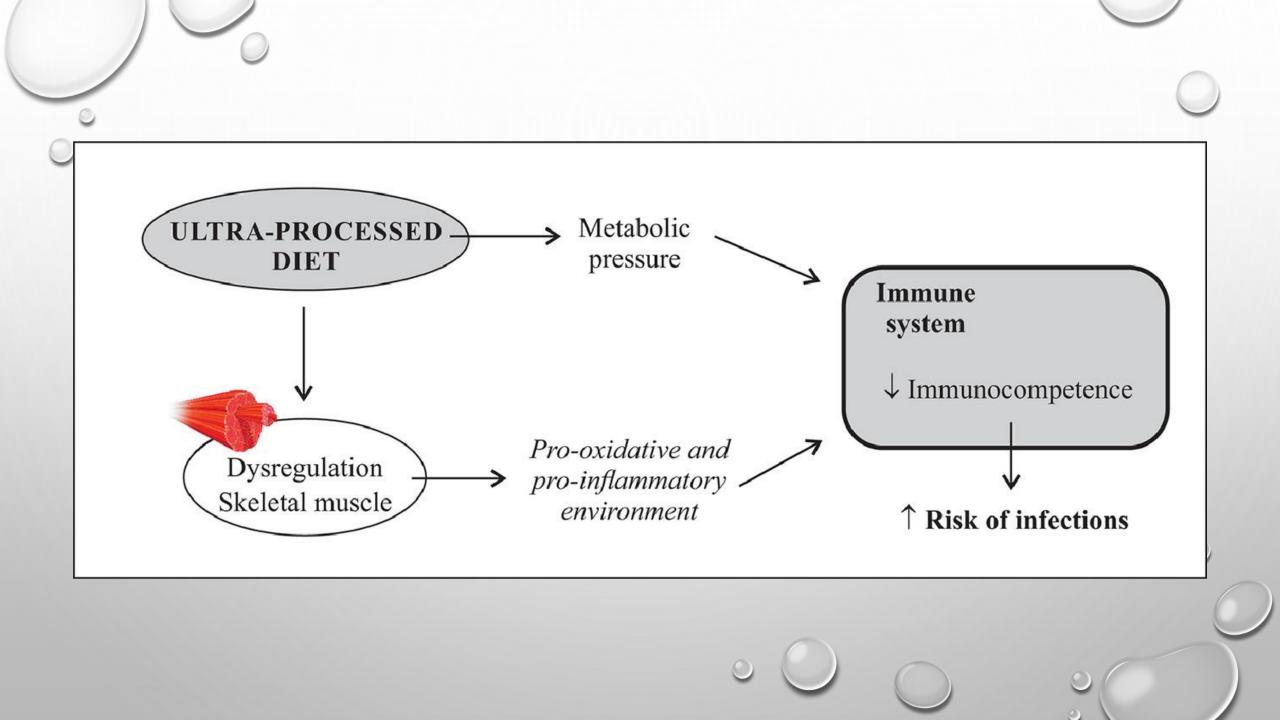


Laura Mancin, et al. ESSR. January 2021

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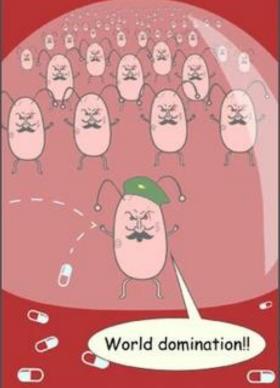
EXERCISE AND SPORT SCIENCES REVIEWS





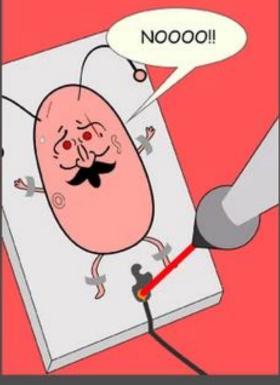
ILLNESS-CAUSING BACTERIA CAN LIVE INSIDE HUMAN CELLS, PROTECTED FROM ANTIBIOTICS AND THE IMMUNE SYSTEM





THEY CAN BECOME RESISTANT TO OUR ANTIBIOTICS, WITH NO EFFECTIVE TREATMENTS TO KILL THEM

WE DEVELOPED A NEW TREATMENT THAT BOOSTS THE STRENGTH OF ANTIBIOTICS AND DESTROYS RESISTANT BACTERIA INSIDE CELLS





THIS COULD BE A NEW WEAPON AGAINST SUPERBUGS, MAKING TREATMENTS OF CHRONIC INFECTIONS MORE EFFECTIVE





Deferiprone and Gallium-Protoporphyrin Potentiate the Activity of Antibiotics in Staphylococcus aureus Small Colony Variants Katharina Richter, Nicky Thomas, Guimin Zhang, Clive A. Prestidge, Tom Coenye, Peter-John Wormald & Sarah Vreugde Frontiers - 2017 - DOI: 10.3389/fc/mb.2017.00280





• Many journals are beginning to recommend a graphical abstract with submission

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 Important to do what we can to make our knowledge more accessible to more people

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 Important to do what we can to make our knowledge more accessible to more people

• Useful for conferences or other presentations, grant or scholarship applications, participant result summaries, etc.

• Draw more attention to your published article

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Captured within search engines as images!

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• Puts research in a more 'useable' format

 Can be used in a portfolio or dossier as a knowledge translation activity Captured within search engines as images!

According to the literature...



According to the literature...

More accessible & understandable

(Hullman & Bach, 2018)



According to the literature...

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Increased
dissemination on
social media

(Ibrahim et al., 2017)



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(Ibrahim et al., 2017)

Greater online engagement

(Chapman et al., 2019)



Have you ever created a graphical abstract before?



What was the hardest part about creating the graphical abstract? What do you think would be the hardest part?



Modules coming early 2023!

HOW TO CREATE A GRAPHICAL ABSTRACT



What do you like?



What do you like?

What don't you like?



What do you like?

What don't you like?

What catches your attention?



What do you like?

What don't you like?

What catches your attention?

What is effective in facilitating your understanding?



What do you like?

What don't you like?

What catches your attention?

What is effective in facilitating your understanding?

Is there anything that you find confusing or hard to read?



What would you include in your own graphical abstract? What would you stay away from?

Why or why not?



Take a couple of minutes to find some graphical abstracts related to your field.



What stands out to you from the examples you looked at?





Catch the reader's attention with your use of symbols, icons, colour, etc.





Catch the reader's attention with your use of symbols, icons, colour, etc.



Use hard-to-read or overcomplicated fonts





Create an **original image**





Create an original image



Use an exact copy of a figure within the paper





Keep it simple





Keep it simple



Have a meaningful and logical layout





Keep it simple



Information overload



Have a meaningful and logical layout



- What is your main message?
 - BLAM, SMIT (Heath & Heath, 2007)

WHAT DO YOU WANT TO CONVEY?

- What is your main message?
 - BLAM, SMIT (Heath & Heath, 2007)

- What is the one thing you want your readers to take away from the graphical abstract?
 - Readers should know... Readers should do...
 - ...Readers should **know** _____, so they **do** _____

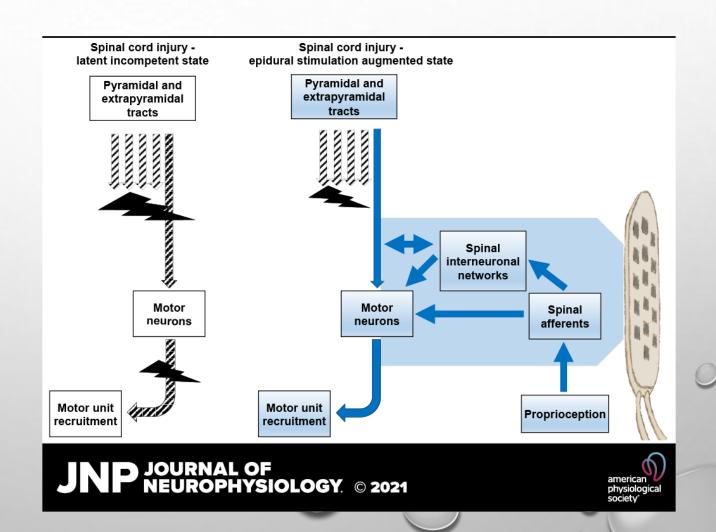
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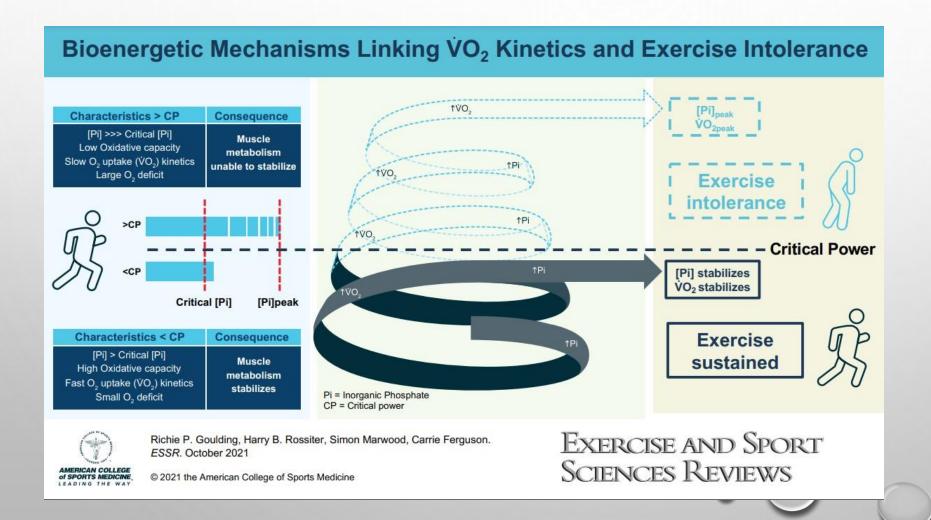
Is there anything unique about your study?

HOW DO YOU WANT TO CONVEY YOUR MESSAGE?

Top to bottom?

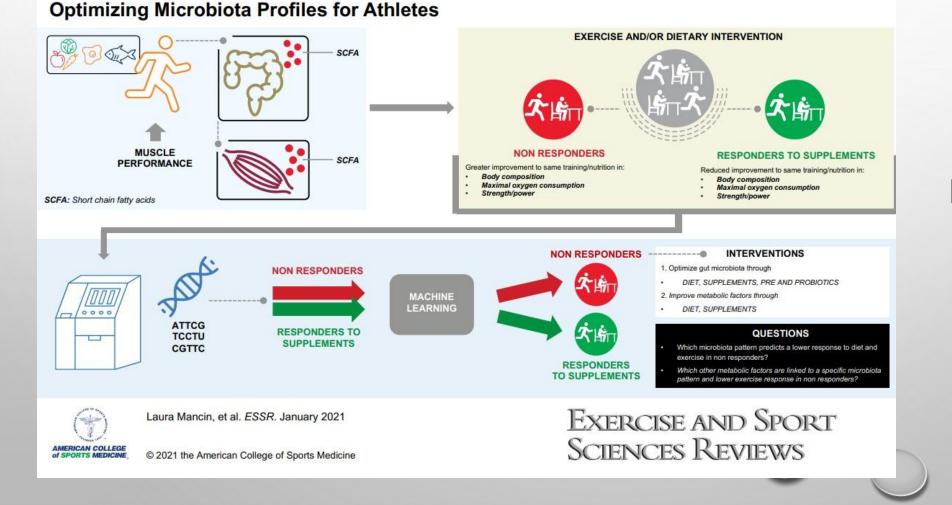


HOW DO YOU WANT TO CONVEY YOUR MESSAGE?



Left to right?

HOW DO YOU WANT TO CONVEY YOUR MESSAGE?



Flowchart?



PRACTICAL CONSIDERATIONS

Choosing a program to use





Choosing a program to use

PowerPoint

Keynote

BioRender

Canva

Piktochart

Adobe Illustrator

Adobe InDesign





Choosing a program to use

PowerPoint

Keynote

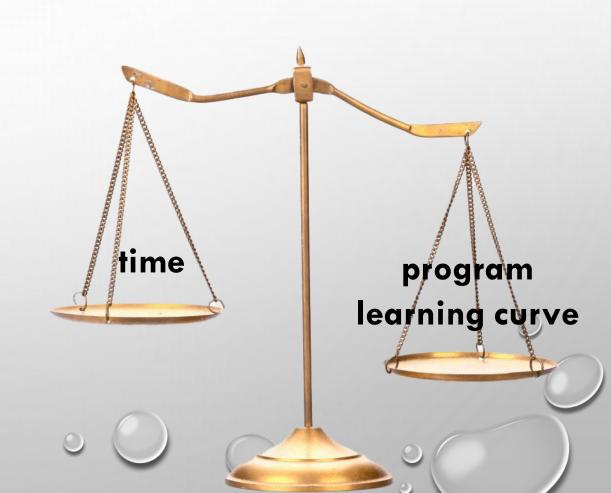
BioRender

Canva

Piktochart

Adobe Illustrator

Adobe InDesign





If you have created a graphical abstract in the past, what program did you use?

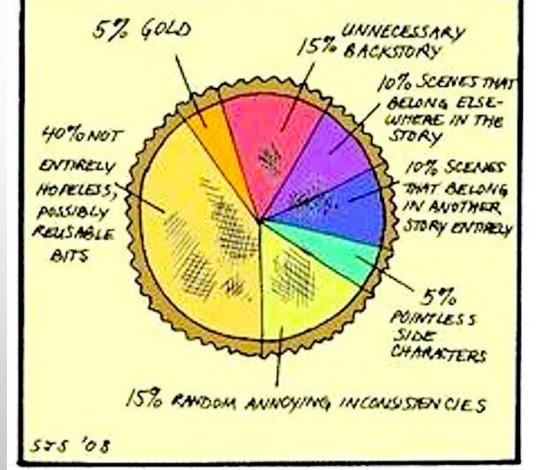


Start with a rough draft

Your First Draft

A Handy Pie Chart.

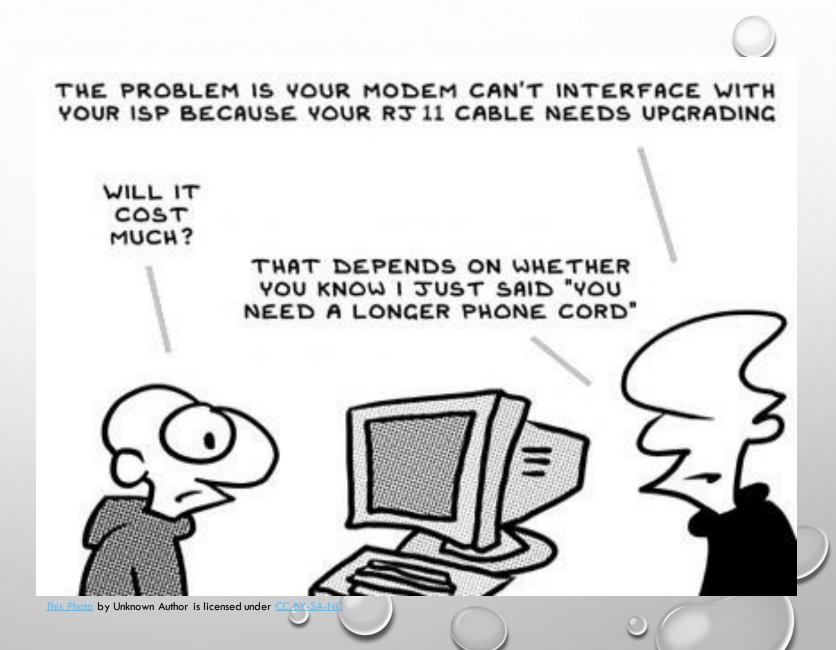
... THOUGH A PIRST DRAFT ISN'T SO MUCH LIKE A PIE AS IT IS LIKE THE FIRST PIE YOU EVER MADE - BURNT CRUST, HEAVY DOUGH, FALLEN CENTER, AND TOO MUCH NUTWEG.



© Finding Wonderland writingya.blogspot.com



What about jargon?





What is the most complex term or concept in your field that you can think of?



How could you simplify this term or concept?



• Be aware of trademark/copyright!

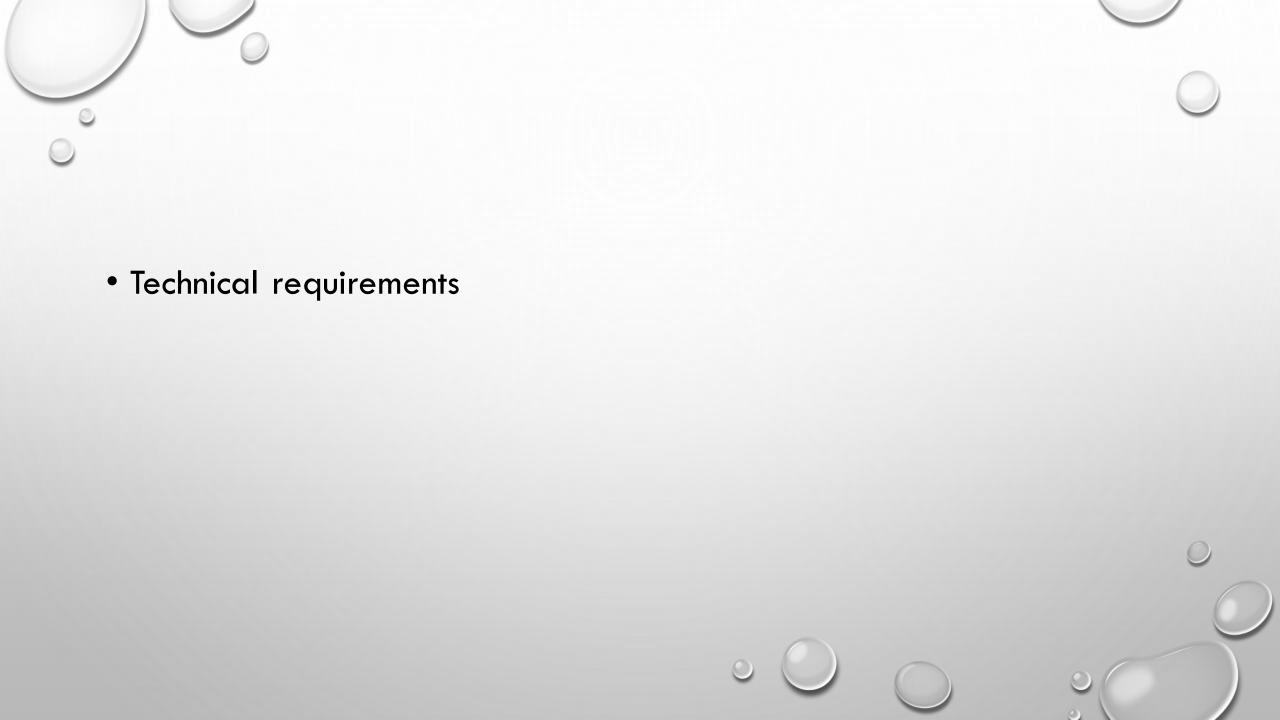


- Using images, symbols, icons, etc...
 - Be aware of trademark/copyright!

https://thenounproject.com

https://unsplash.com

https://vecteezy.com





- Technical requirements
 - Make sure the graphical abstract you're submitting is in it's final form



- Technical requirements
 - Make sure the graphical abstract you're submitting is in it's final form
 - Double check journal requirements (e.g., sizing, acceptable file types, etc.)

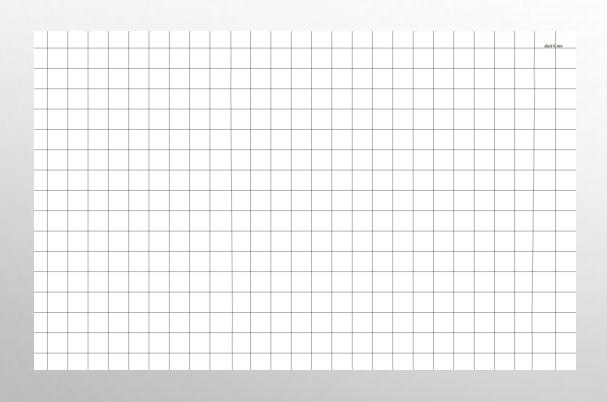


- Technical requirements
 - Make sure the graphical abstract you're submitting is in it's final form
 - Double check journal requirements (e.g., sizing, acceptable file types, etc.)
 - Check quality and size of images





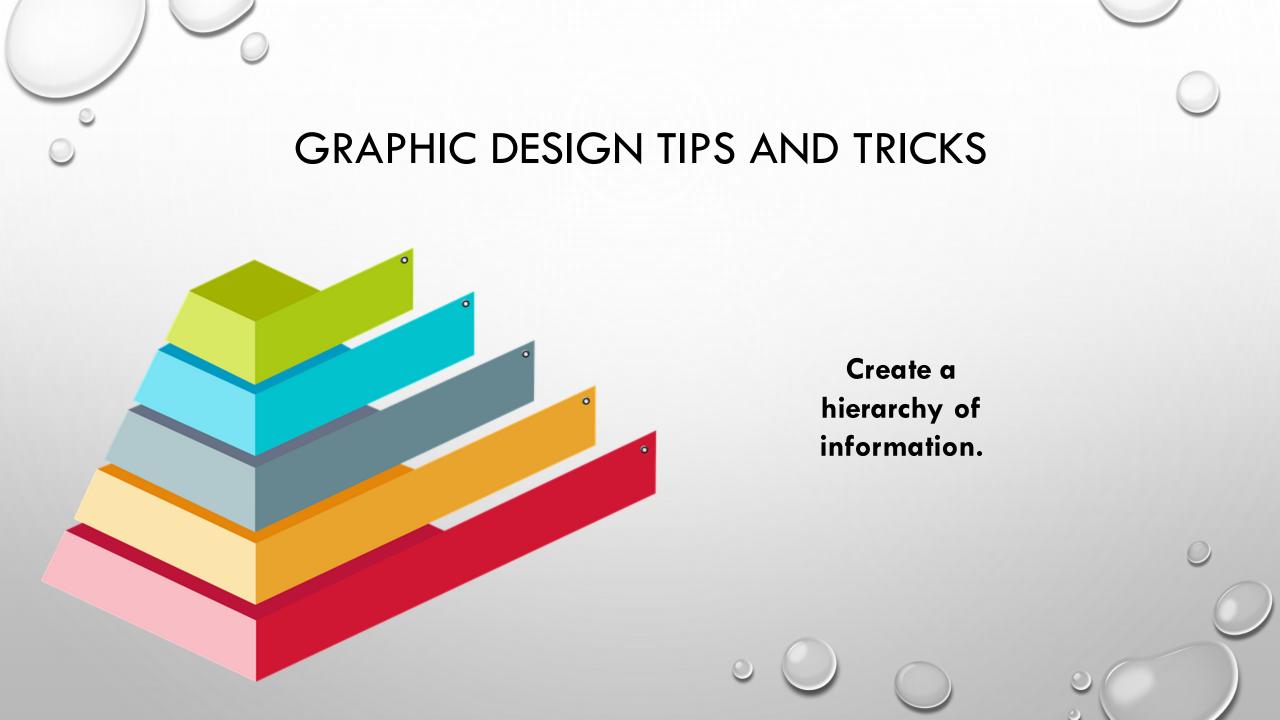
GRAPHIC DESIGN TIPS AND TRICKS



Use a grid.



Less is more.





Ensure a nice visual balance between content and white space.





Ensure contrast between the text and background.

Like this! Not like this.





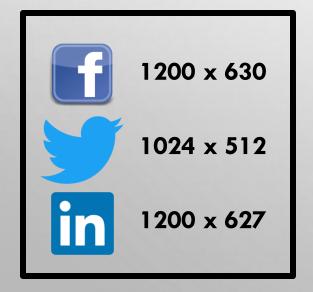


Where is your online audience? How can you reach them?





Where is your online audience? How can you reach them?

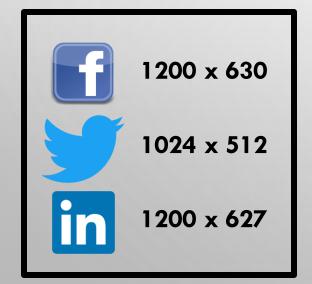






Where is your online audience? How can you reach them?

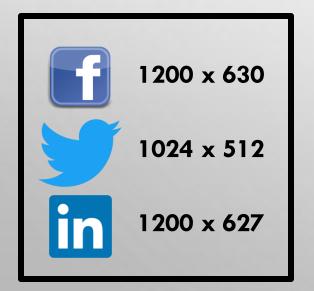
#UseHashtags







Where is your online audience? How can you reach them?



#UseHashtags



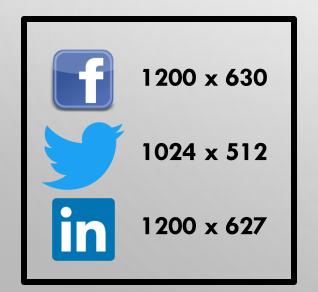


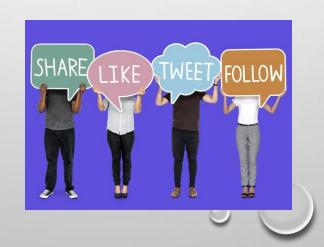


Where is your online audience? How can you reach them?

#UseHashtags

Make use of your caption!





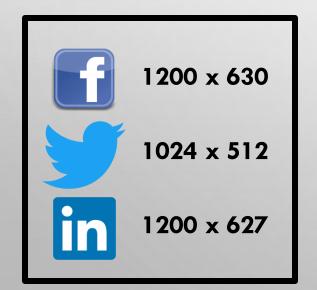


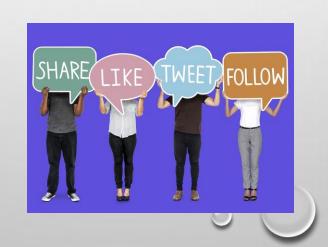


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Make use of your caption!







Improved healing after non-surgical periodontal therapy is associated with higher protein intake in patients who are non-smokers (Dodington et al., 2021)

Abstract

The aim of this study was to determine whether a relationship between periodontal healing and protein intake exists in patients undergoing non-surgical treatment for periodontitis. Dietary protein intake was assessed using the 2005 Block food frequency questionnaire in patients with chronic generalized periodontitis undergoing scaling and root planing (n = 63 for non-smokers, n = 22 for smokers). Protein intake was correlated to post-treatment probing depth using multiple linear regression. Non-smoking patients who consumed ≥1 g protein/kg body weight/day had fewer sites with probing depth ≥ 4 mm after scaling and root planing compared to patients with intakes ≤ 1 g protein/kg body weight/day (11 \pm 2 versus 16 \pm 2, p = 0.05). This relationship was strengthened after controlling for baseline probing depth, hygienist and time between treatment and follow-up (10 \pm 2 versus 16 \pm 1, p=0.018) and further strengthened after controlling for potential confounders including age, sex, body mass index, flossing frequency, and bleeding on probing (8 \pm 2 versus 18 \pm 2, p < 0.001). No associations were seen in patients who smoked. Consuming ≥1 g protein/kg body weight/day was associated with reductions in periodontal disease burden following scaling and root planing in patients who were non-smokers. Further studies are needed to differentiate between animal and plant proteins.



JOURNAL REQUIREMENTS

- Represent the article topic in an attention-grabbing way; not the same as a Figure in the paper; original and unpublished artwork
- PNG, JPEG, TIFF, SVG
- Text clear and easy to read: Times, Arial, Courier, Helvetica, Ubuntu or Calibri
- Minimum size 560 x 1100 pixels

Improved healing after non-surgical periodontal therapy is associated with higher protein intake in patients who are non-smokers (Dodington et al., 2021)

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with reductions in periodontal disease burden following scaling and root planing in patients who were non-smokers. Further studies are needed to differentiate between an interest of the protein.

	PowerPoint	Adobe Illustrator
	easy-to-use, good for simplistic designs (basic shapes, text, basic diagrams, etc.)	purchase required, vector-based graphics software, can create high-quality images but requires a more
	Keynote	advanced understanding of how to use the application
(-	for Apple users, similar to PowerPoint in terms of	Adobe InDesign
	creation possibilities	purchase required, designed specifically for layout and
	Pages	designs are easy to execute; much simpler to use than
	for Apple users, a word processor similar to Microsoft	photoshop
	Word but featuring more design elements; easy to	Canva
	manipulate images and text	easy-to-use graphic design platform, free version and
	BioRender	subscription-based, diverse collection of icons,
	subscription-based, contains a collection of icons and	symbols, and images that can be used to create all
	symbols specific to life sciences/biomedical research	kinds of visual content
	Mind the Graph	Piktochart
	subscription-based, contains a diverse collection of	easy-to-use graphic design platform, free version and
	icons, symbols and templates for graphical abstracts,	subscription-based, diverse collection of icons,
	infographics, and posters	symbols, and images that can be used to create all
	Diagrams.net:	kinds of visual content
	open-source graph drawing software, great for	
	creating flowcharts, process diagrams, organizational	Other:
	charts, etc.	

	PowerPoint easy-to-use, good for simplistic designs (basic shapes, text, basic diagrams, etc.)		Adobe Illustrator purchase required, vector-based graphics software, can create high-quality images but requires a more
	Keynote for Apple users, similar to PowerPoint in terms of		advanced understanding of how to use the application Adobe InDesign
	creation possibilities		purchase required, designed specifically for layout and
	Pages		designs are easy to execute; much simpler to use than
	for Apple users, a word processor similar to Microsoft	3000	notoshop
	Word but featuring more design elements; easy to	V	Canva
	manipulate images and text		easy-to-use graphic design platform, free version and
	BioRender subscription-based, contains a collection of icons and symbols specific to life sciences/biomedical research		subscription-based, diverse collection of icons, symbols, and images that can be used to create all kinds of visual content
	Mind the Graph		Piktochart
	subscription-based, contains a diverse collection of icons, symbols and templates for graphical abstracts, infographics, and posters		easy-to-use graphic design platform, free version and subscription-based, diverse collection of icons, symbols, and images that can be used to create all
	Diagrams.net:		kinds of visual content
	open-source graph drawing software, great for creating flowcharts, process diagrams, organizational charts, etc.		Other:

So...

My research question: Is there a relationship between protein intake and healing after non-surgical periodontal therapy in smokers and non-smokers?

What I want readers to take away from this article: Non-smokers who consume at least 1 g protein/kg body weight/day demonstrate improved healing after non-surgical periodontal therapy.

Elements I may want to include: Sample size, main methods used (food frequency questionnaires following non-surgical periodontal therapy, statistical analyses), key results such as the difference in relationship that was seen in smokers vs. non-smokers, etc.

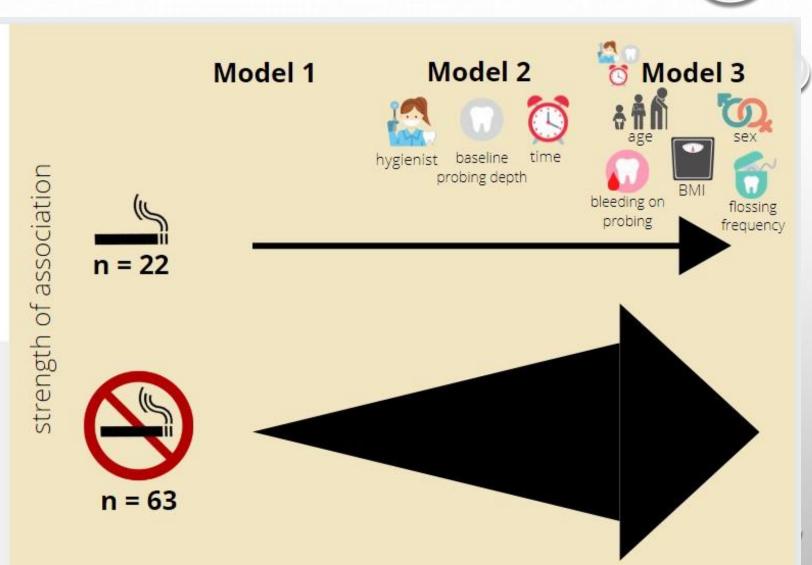




2005 Block FFQ



Multiple linear regression, probing depth

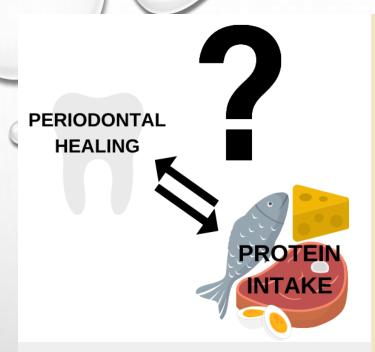


Key finding: Consuming ≥ 1 g protein/ kg body weight / day may support healing after non-surgical periodontal therapy



BEFORE SUBMITTING...

- Does it portray the key message I want to portray? Is this message easily identifiable to a first-time viewer?
- Have my co-authors reviewed and provided feedback?
- Can I reduce the use of text at all?
- Am I overstating any findings or results?
- Am I happy with the final product?
- Is the graphical abstract in line with the technical specifications of the journal?

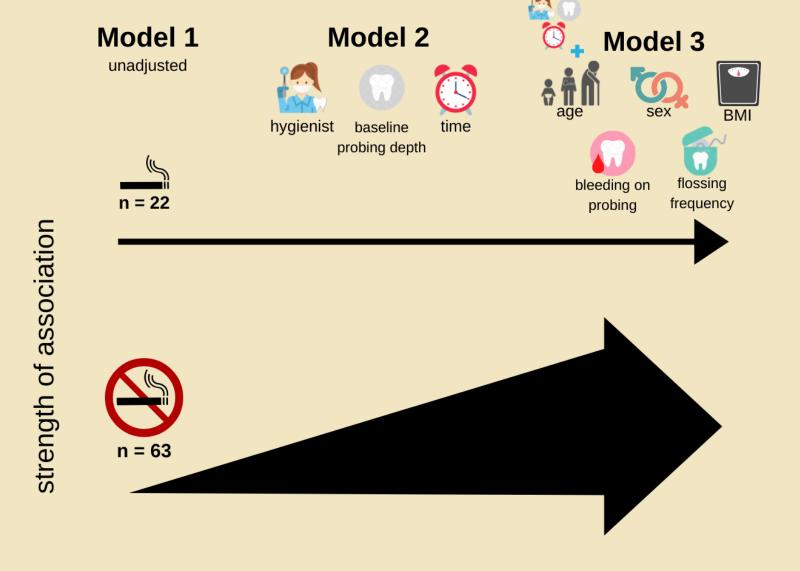




2005 Block FFQ



Multiple linear regression, probing depth



Key finding: Consuming ≥ **1 g** protein/ kg body weight / day may support healing after non-surgical periodontal therapy

THANK YOU!

Ir 16aq@brocku.ca



Modules coming early 2023!