



# An Insider's Insight into Amazing Abstracts

Do you need to write an abstract? Don't panic! An abstract is simply a short, standalone, easy-to-follow overview of your work. A well-written abstract facilitates understanding of the main thrust of your research and allows readers to decide quickly whether they want to delve further.

Abstracts are not all created equal; writing abstracts that are technically-sound is relatively easy, writing amazing abstracts is not as straightforward. We provide here some insights from the Niche medical writing team who have been writing amazing abstracts since 1998.

## Before you start

The abstract will be the one aspect of your work that most readers see; it is your one chance to impress – make the most of it

Your abstract will be accessible online forever – strive to produce work that you will still be proud of in years to come

Identify and emulate memorable features of winning abstracts

## Prepare to succeed

Write a first draft that contains all that you feel is necessary to summarise the main thrust of your research

Cut the text to only the essential components of your underlying finding or message

Give yourself time to produce your best work. Edit ruthlessly; polish your document until it shines

## Key Insights

Understanding how abstracts evolved may give you a better perspective on their construction, purpose and value. Aristotle's Art of Rhetoric, a singular document for its time [1], provided the earliest systematic analysis of persuasive argument and included its own style guide, which emphasised clarity, elegance and subject-suitability. However, for many centuries after access to the philosophical musings of the cognati became somewhat restricted. Dissemination of scientific learning occurred mainly by word of mouth, delivered by learned scholars as they moved from patron to patron. Following the explosion of interest in the natural sciences at the end of the 1700's, clearing houses began to publish and distribute digests of what was new in science, effectively abstracting the findings of the increasing number of scholars, their inventions and their scientific observations.

These digests were forerunners of the first scientific journals, and as their purpose evolved their number increased from several dozen in the 17<sup>th</sup> century, to hundreds in the 18<sup>th</sup> and several thousands in the 19<sup>th</sup> century. Today, there are tens of thousands of journals. Over this centuries the format of scientific reporting and dissemination has also undergone a metamorphosis. With an exponential growth in the scientific reporting of activities, abstracting the work of scholars became a singular profession for journeymen scientists (often not the scientists who had actually performed the experiments) and at one time counted Albert Einstein among their ranks [2].

“If you can't explain it simply, you don't understand it well enough.”  
– Albert Einstein

However, as the literature exploded it became harder and harder for digests to keep up with the rate of discovery. Eventually, authors recognised the benefit of preparing their own abstracts. It was clear that writing their own summaries would speed up the process of dissemination through the digests. As scientists we are expected to write objectively about our own work but one might expect an authors own exposition to be more likely to show an author's work in its best light. And so, the place of the abstract in composition of the modern manuscript was born [2].

## Make every word count

Abstracts often have a word limit and so being concise is a good discipline to practice. Today's online submissions gateways police word limits strictly. Limits generally range from 150 to 300 words. The trend in publications has been to use fewer words so you must make every word count. Many guides will tell you to follow 'the three C's:' be clear, concise and correct.

Start by writing a thorough description of your work and then start to edit... and then edit some more [3]. Try to use key nouns, meaningful descriptors, and powerful action words as well as following the primary rules of clear communication, giving the:

**Why?** State the problem or rationale behind why the subject or research question is important

**Who** is affected or involved in the study or program?

**Where?** Give a sense of where the study is situated in the grand scheme of things

**When?** Give the reader time references (retrospective or prospective; longitudinal study)

**How?** Give enough detail to have the reader understand the method used to achieve results

(so) **What?** Give the practical implications to emerge from the work

# Four steps to an Amazing Abstract

When you start creating your amazing abstract, we assume that you have consulted one of the authoritative guides, such as, 'Abstracts and the Writing of Abstracts' [4], which will guide you on the technical aspects of abstract writing (or see our handy hints in Appendix 1).

We also assume that you have researched your target and so have a clear understanding of the required structure, word limit and format/style for your target publication (Table 1). Building on these assumptions, we advise authors to give themselves sufficient opportunity to emphasise their findings by isolating key messages, eliminating minutiae and refining their conclusion.

## Step 1: Walking backwards

When looking for scientific articles, do you read every journal article your search produces in their entirety or do you use the abstract to determine whether you want to dig deeper? If you prefer to triage your reading you're in good company. One survey has reported readers accessing little more than the abstract in 63% of articles they download [5]. This only serves to underline our earlier observation that your abstract is the single most important marketing tool available to you. You might also consider the hundreds of abstracts often recovered during the course of a single online literature search session.

Table 1. Characteristics of a well-written abstract

Follows the required format/style	Adheres to word count limits; follows the required structure (e.g. IMRAD or block text); tables or figures only included if permitted
Does not depend on outside data sources	Stands alone - does not refer to tables, references or figures not in the abstract itself
Provides a narrative	Includes an aim or objective, includes methodology, relevant data and a conclusion or answer to your hypothesis, does not make conclusions without supporting data
Adheres to good writing practice	Limited use of abbreviations, appropriate use of units, inclusion of the same key words and terms as the title and introduction
Uses common MeSH terminology	Readers of search, indexing and abstracting services depend on the accuracy and recognition of your title. Wrong words lead to wrong readers

## Telling a story

Authors should not lose sight of the single most important concept – your abstract must tell a story. Gerald Weissmann, an American physician/scientist, essayist and a past Editor-in-Chief of the FASEB Journal once said, 'abstracts must evoke an emotional as well as an intellectual response' [6]. An abstract's story, like any other writing, should include a beginning, a middle and an end. Authors, editors and critics alike have credited the storytelling approach as being essential in establishing a clear, concise and memorable message as well as providing a stimulus to readers for further contemplation [7].

In recounting their tale, authors must deal with the issue of word limit, perhaps the single biggest challenge associated with abstract writing. In your quest to write amazing abstracts, authors can learn much from Japanese 'haiku,' which defy the impossible – capturing an entire story in 17 syllables.

When trawling through the many references that emerge from ill-conceived search strategies, researchers often assess search results based on the title, possibly stretching to the first (introductory) and last sentences (conclusion). Construct your abstract with this in mind [8].

We suggest writing a first draft of the document – one that contains all the things you feel you need to include and want to say. Then, by walking backwards through the document, you should be able to 'distil' the meaning of your work into a 'key message' – the protagonist of your story. Next, identify the essential supporting characters that will convey your message and arrange them for maximum impact in that:

- a) You have a great title (see 'What's in a name?')
- b) The first sentence gives the setting and the last 1–2 sentences state the key findings (and possibly your interpretations)
- c) When you are done writing check that the first and concluding sentences of the abstract run together smoothly if you delete the rest of the text

## Step 2: Hitting the target

Adapt your draft document to fit the audience, or risk your message missing its mark altogether. A recent review of 795 articles found that only 12.5% addressed their target audience [9]. Abstracts intended for a grant committee or PhD admission board will contain neither results nor conclusions. As all members of the committee or board will review the abstract, but some may not be experts in the field, it must use clear language, devoid of jargon, with any abbreviations clearly defined.

Your abstract should include background information and hypothesis, the rationale for the proposed work, objectives and endpoints and research methods. There may not be a word limit, but it is usual for these abstracts to be restricted to a single page. A clear demonstration of how your study design answers the questions posed in the hypothesis, how you arrived at the sample size and statements detailing the achievability of recruitment targets, design feasibility, justification for the budget and expected timelines will strengthen the impact of the abstract.

Some journals and publishers also offer the potential for you to include a plain language of lay summary of your work (in some cases it is mandatory). These are published in parallel with your scientific language. Abstracts intended for the public must communicate with an audience drawn from a wide cross-section of society. Most likely your audience will differ in age, scientific interest and educational achievement as well as their level of interest and understanding. It is for this audience, more than any other, that your narrative skills come to the fore. An abstract that tells a story holds appeal for, and is better suited to, delivering research results to this audience. Help the man-in-the-street to understand the personal relevance of your work. In this setting, a fun title can draw attention to your abstract and may be quite appropriate, as the expectations of this group are likely to be different from readers of scientific papers (see 'What's in a name').

### Keywords

Keywords are a tool to help indexers and search engines retrieve relevant database 'pages' or content. Use the right keywords and you will increase the number of times your work appears in the search strategies run by those looking for work relevant to yours – and so more likely to read it.

For keywords to enhance the discoverability of your work they need to be chosen carefully so that they represent the content of your manuscript and are specific to your field or sub-field. Consider how people are likely to search for your articles, which may be a bit different than words used in the article itself. Where possible use common Medical Subject Headings (MeSH) - a controlled and hierarchically-organized vocabulary produced by the National Library of Medicine (NLM). It is used for indexing, cataloguing, and searching of biomedical and health-related information. They include the subject headings appearing in MEDLINE/PubMed, the NLM Catalog, and other NLM databases.

## What's in a name?

The topic of titles has been hotly debated. Which is best, short or long, funny or dull [10]? Your choice should be based on the eventual purpose of the abstract, ignore this at your folly. Abstracts for full papers will naturally adopt the paper's title and must conform to the journal's constraints or at least to the editors requirements. In contrast, if the abstract is for a poster display, engaging the community or summarising a grant proposal submission, an original, modestly humorous or contentious title may well form an integral part of a winning strategy.

In the 2015 Christmas issue of British Medical Journal, a paper analysed the use of Bob Dylan lyrics in scientific papers. The most cited song was 'The Times They are a-Changin' – a favourite title for many editorials. Based on standard citation scores, however, 'Dylan' articles are cited slightly less frequently than other similar articles with less witty titles [11].

An analysis of 1009 titles in psychology journals revealed that although humorous titles such as, 'The unicorn, the normal curve, and other improbable creatures' increased the fun factor, it's inclusion seemed to diminish the perceived seriousness of the content and reputation of the author [12]. It should be noted that none of these studies determined what effect, if any, jovial titles had on acute dissemination and the audience reach they enjoyed in the scientific community (number of 'hits' the papers received). More research is needed to conclude how such factors on social reach and altmetric scores.

## Step 3: Ockham's razor

To quote William of Ockham, whose name is synonymous with the principle of parsimony, 'it is vain to do with more what can be done with less. "Murder your darlings," is a more contemporary expression often attributed to William Faulkner, but which can actually be traced back to the English writer Sir Arthur Quiller-Couch. Of course, this expression is not meant to suggest literally killing the people you care about. Rather, it is a metaphor for how you should approach your text when editing. The idea is to proceed objectively and without sentiment, just as you might if you had to kill a loved one.

In the business of writing an amazing abstract, less really is more (assuming a certain level of skill). Focus on distilling the work down to the most important findings, achieving the word count while including sufficient original data to communicate your message. Include key information about the study in the title to save on precious space [13,14]. Write each sentence so as to convey maximum impact.

## Step 4 Diamond in the rough

Review your document once more and polish the content until it outshines all your expectations. To do this, authors follow the acronym ABC and strive to be:

- Articulate – deliver the salient points succinctly and devoid of jargon
- Brief – show restraint in presenting your information
- Careful – double check your data, statistical analyses and conclusions

Ask a colleague to check your work. Abstracts are, by their very nature, short — it shouldn't be too onerous for colleagues to critique your work. Even if you decide not to incorporate all their comments, another pair of eyes may spot an overlooked typographical error [3].

If time permits, revisit the abstract after a few days. This gives you the distance needed to evaluate your abstract objectively. Ask yourself whether someone from outside your field would be able to derive and understand your take-home message, or have you 'cloaked' your work in language that only fellow nerds and pundits would understand?

### Positively positive

The enthusiasm we often have for our own findings has increased by leaps and bounds over the last four decades. A retrospective study analysed the annual frequencies of positive, negative and neutral words in scientific abstracts published between 1974 and 2014.

Three decades saw the absolute frequency of positive words used increase from a mean of 2.0 to 17.5% (a relative increase of 880%), particularly on the strength of words such as 'robust,' 'novel,' 'innovative' and 'unprecedented.' By comparison, negative word frequencies increased from 1.3 to 3.2% (a relative increase of 257%) over the same period.

These findings were noticeably less pronounced in journals with higher impact factors. There was no apparent increase in neutral word use or in the frequency of positive words used in published books (thus excluding general language tendencies as an explanatory factor) [15]. Keep it real. As much as you may be tempted to elaborate on the virtues of your results, you should practise sober reporting; it will be much appreciated by editors and peers alike.

## Write for posterity

The internet revolutions means that anyone can and will find and read your abstract. Long after your symposia posters have been forgotten and the scientific contribution of your beautifully constructed manuscript buried by time, the abstracts will remain findable and available (forever?). It is likely that they will continue to emerge from carefully constructed and broadly executed search strategies submitted to online databases for decades to come – perhaps even longer. As such, they will form a major aspect of your scientific legacy, available for scrutiny and comparison long after you have stopped active research (perhaps even breathing).

In the words of Jorge Luis Borges, 'when writers die they become books.' Through our abstracts, we will live on; shouldn't your digital legacy be amazing? Write for the future, write clearly, tell the story. Adopt the position of Rupert Grave's Emperor Claudius (c. 41–54 AD), who, believing that his secret memoirs would be rediscovered far in the distant future, wrote in a fashion that he believed posterity would best understand.

# The graphical abstract

Although, in certain fields (e.g., chemistry) graphical abstracts have formed a part of scientific publications for decades it is only relatively recently that they have penetrated the wider literature. They range in their complexity from simple annotated figures to complex, multifaceted diagrams.

Simple abstracts might be used to illustrate a graphical table of contents intended for rapid information transfer for a reader browsing through the titles of papers published in a journal. The aim of the simple graphical abstract is to draw attention and to 'hook' the reader so they click on a link to the parent manuscript. As the complexity of a graphical abstract increases they give more information on what you've done or discovered and you in your scientific paper, or what you aim to research in a grant proposal. As it increases in complexity your graphical abstract evolves from simple hook to providing a mechanism to allow your reader to effortlessly absorb your message. The phrase generally attributed to Fred R. Barnard in 1921 still holds true, "One Look is Worth A Thousand Words."

Most importantly graphical abstracts should be aimed at your specific audience, presenting your intended 'message' clearly. Most often they appear at the front of your text. The reader should quickly understand your message.

You should only consider creating your graphical abstract once you have completed your text with its traditional, written abstract. When first sketching your graphical abstract try to limit the message you want to communicate to 50 words or less. Select relevant visual elements (a cell, protein, organism...) and the textual elements that will accompany them. Look to involve key figures or diagrams that you have used in the body of your text. As the space in the graphical abstract is very limited, keep the number of elements to the minimum and simplify the message to bare essentials. Consider the way in which the eye scans information (Figure 1). Avoid having too many visual elements. A story flow from left-to-right is preferred or from the top down (Figure 2).

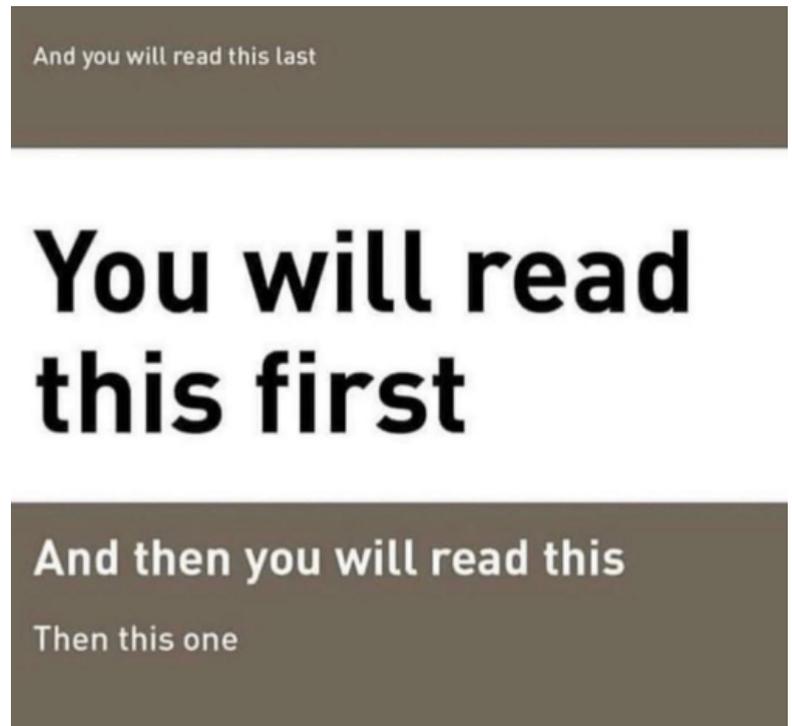


Figure 1. Exploit reading patterns

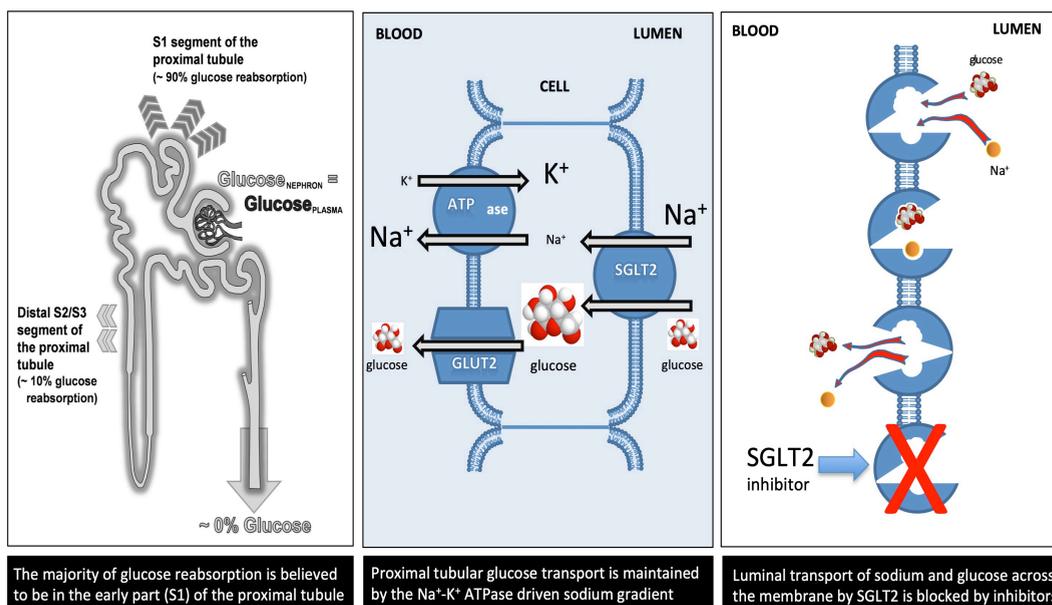


Figure 2. Where necessary build your message with independent components (example graphical abstract from Hardman et al., 2007 [16]).

Read any formatting and content requirements before moving from initial sketches to drawing software. Direction is often given on font types and size, line-widths, colours and dimensions as well as file format. The final step is to refine what you've drawn. As with any other summary, remove all elements that don't add to your message. Remember: if a visual element doesn't add to the message, it detracts from it.

# An interview with our Managing Director

**Q** What is the most challenging aspect of writing an abstract?

**A** Telling a story in a clear and concise way while fitting only the most important and relevant information in a limited space. This involves choosing carefully the appropriate words that convey your key message. This is one arena where an experienced writer can demonstrate the mastery of their discipline.

“Brevity is the soul of wit.”  
– William Shakespeare  
Hamlet Act -2, Scene 2, 86-92

**Q** What is it that differentiates a technically sound abstract from an amazing abstract?

**A** Amazing abstracts grab the reader and make it easy for them to read it from beginning to end. It is easy to write an abstract for a well-conducted study with interesting data and earth-shattering conclusions. Ensure that your syntax doesn't hamper the reader's smooth progress through the content or your abstract will be categorised simply as 'technically-sound'. Faint praise, indeed. Consider the advice of Arthur Schopenhauer, “One should use common words to say uncommon things.”

“So the writer who breeds more words than he needs is making hard work for the reader who reads.”  
– Dr Seuss

**Q** What advice do you have for first-time authors?

**A** Give yourself plenty of time; the limited word count might lull you into thinking that it is something that can be accomplished quickly; don't be fooled! As the 17th-century writer and scientist, Blaise Pascal commented, “I have made this longer than usual because I have not had time to make it shorter.”

“Remember the waterfront shack with the sign **FRESH FISH SOLD HERE**. Of course it's fresh, we're on the ocean. Of course it's for sale, we're not giving it away. Of course it's here, otherwise the sign would be someplace else. The final sign: **FISH.**” – Peggy Noonan

**Q** Why would a writer go to the effort of creating a truly amazing abstract rather than simply being satisfied with a technically sound abstract?

**A** Writing abstracts can be fun and when you get it right, success is its own reward giving you a great feeling of satisfaction. Never forget that your abstract will be a key part of your scientific legacy. It maybe appearing in literature searches for decades to come – make it count

## To yourself be true

When polishing your abstract and adopting changes suggested by kindly reviewers, be careful in the changes you make.

A study examined differences between 71 abstracts for poster presentations and their corresponding full-length articles in peer-reviewed journals. Differences between the two were categorised as either major or minor. Major differences included changes to the study aims, methods, statistical analyses, results and conclusions. Forty-six (65%) of the abstracts reviewed had at least one major variation and approximately a third sported what appeared to be marked differences in the statistical significances reported for study results as well as, in some cases, conclusions that deviated from the corresponding article [17].

**Q** What makes the difference between an acceptable and a successful abstract?

**A** Abstracts are about communicating a message. Always consider the target audience. Ask colleagues and anyone from the intended audience to review your abstract. Welcome their advice and incorporate their comments if you can – they will most likely make your work more engaging.

# CONSORT-ing with others

As a brief summary of a research article, the abstract plays an important role in reporting a clinical study. Readers commonly decide whether or not to read an article based on their impressions of the abstract [8]. An abstract is also the first and fastest way for delivering the main study results to busy health care providers [8]. Those who don't have the time or resources to access the full text of a study must make decision based only on information in the abstract [18]. Consequently, for detailed, complete, structured and good quality abstract reporting is essential [8, 19]. This was the thinking behind the 2008 extension to the CONSORT statement that provided a list of essential items that authors should include when reporting the main results of a randomised trial in a journal (or conference) abstract [20]. The CONSORT statement noted that journal abstracts should contain sufficient information about a trial to serve as an accurate record of its conduct and findings, providing optimal information about the trial within the space constraints and format of a journal. The statement also noted that a properly constructed abstract helps individuals to assess quickly the relevance of the findings [21]. The statement also emphasised how the abstract should reflect accurately what is in the full journal article (and not include information not in the body of the paper). Studies comparing the accuracy of information reported in a journal abstract with that reported in the text of the full publication have found claims that are inconsistent with, or missing from, the body of the full article [22, 23, 24, 25]. Conversely, omitting important harms from the abstract could seriously mislead someone's interpretation of the trial findings [26, 27].

## CONSORT abstract checklist

Admin	<input type="checkbox"/>	Contact details for the corresponding author
	<input type="checkbox"/>	Trial registration number and name of trial register
	<input type="checkbox"/>	Funding source of funding
Methods	<input type="checkbox"/>	Description of the trial design
	<input type="checkbox"/>	Eligibility criteria for participants and the settings where the data were collected
	<input type="checkbox"/>	Interventions intended for each group
	<input type="checkbox"/>	Specific objective or hypothesis
	<input type="checkbox"/>	Defined primary outcome
	<input type="checkbox"/>	How participants were allocated to intervention groups
	<input type="checkbox"/>	Study blinding
Results	<input type="checkbox"/>	Number of participants randomised by group
	<input type="checkbox"/>	Recruitment - Trial status
	<input type="checkbox"/>	Number of participants analysed in each group
	<input type="checkbox"/>	Primary outcome results for each group, estimated effect size and precision
	<input type="checkbox"/>	Important adverse events or side effects
	<input type="checkbox"/>	General interpretation of the results

The statement strongly recommends the use of structured abstracts for reporting randomised trials since they provide readers with information about the trial under a series of headings pertaining to the design, conduct, analysis, and interpretation [28]. Some studies have found that structured abstracts are of higher quality than the more traditional descriptive abstracts [29, 30] and that they allow readers to access information more easily [31]. The 2008 extension to the CONSORT Statement provided a minimum list of essential items, that authors should consider when reporting the main results of a randomized trial in any journal or conference abstract.

## Video abstracts

Video abstracts are the newest addition to the story of scientific abstracts. They generally accompany your scientific publication and intended to promote your work. Experience has shown that videos don't need to be boring, even if your subject considers a serious subject. However, they should include your main results and conclusions as well as key aspects of your work. In an ideal world it should engage viewers by telling a story from hypothesis to conclusion. High quality videos can be produced relatively cheaply and many authors put emphasis on capturing the attention of their audience, encouraging them to read your paper.

Authors are advised to put scientific terms into conversational language, as if telling the story to a lay person. Video abstracts are aimed at the scientific public but are open to anybody and will reach a wider audience, including journalists. To increase the chance of your entire message getting across (i.e. to ensure your viewers watch the video to the end), your video needs to be engaging but also as short as possible, journals of give a limit of 4 minutes but you may want to consider less than half that time. Don't give too much away, remember you want to encourage your viewers to visit and read your paper. Finally, although this is video, the factor you are most likely to be judged on is your sound quality. Your audience may tolerate poor picture quality but arguably nothing will make people switch off faster than poor audio [32].

## And finally...

In summarising (pun intended), the optimal writing strategy is to identify the primary issues of why and how the work was done, the pertinent results and the potential implications. When coupled with clear, direct communication, strict adherence to format requirements and careful proofreading the likelihood of producing an amazing abstract increases. If in doubt about the quality of your work you could try performing an objective review. In their 2009 essay, Ufnalska and Hartley suggest several different approaches [33].

Remember, an abstract is a vehicle for communicating the most important aspect of your work in a logical and acceptable format and style. This constraints of word count and format will exercise your skill in identifying only the most important elements, and in so doing will help clarify your thinking about the entire study. Thus, if you are planning to present your findings at conferences while finalising your manuscript the process of writing the abstract should help you focus on the key aspects of your work. Here we have presented a stepwise approach based on our own experience and support it with evidence from the literature. We have also provided some of our trade secrets on what distinguishes an ordinary summary from the extraordinary.

The last 10 years has perhaps seen more changes to the form and function of abstracts than occurred in the previous century. The opening up of the internet bandwidth and ready availability of reliable computer storage has expanded abstracting opportunities with the introduction of graphical and video abstracts which can but serve to increase the accessibility and discoverability of your work [3, 34].

If you have found focusing on the science of abstracting a little exhausting you could always try the blog by Hilda Bastian from Scientific American in 2014 that gives a little more light hearted review of the subject [35].

## Next Steps

Like many things, writing an amazing abstract takes practice; you must not shy away from the challenge, but rather seize every opportunity to submit abstracts. And as we often say here at Niche:

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# How To Write an Amazing Abstract

1

## Before You Start

Research your target audience



The abstract will be the one aspect of your work that most readers see; it is your one chance to impress, make it count

Use the 'elevator talk' analogy: Imagine you are in an elevator with Bill Gates and you have 1 minute to summarise what you do, how you do it, the results you produce and the impact you make



2

## Tell a Story Using IMRAD: Introduction; Methods; Results and Discussion

"If you can't explain it simple you don't understand it well enough"  
Albert Einstein

A Robust Machine Learning Framework to Identify Signatures for Frailty. A nested case-control study in four aging European cohorts

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**Background:** We aimed to identify and characterize associations between frailty (with and without disability) and sets of omic factors (genomic, proteomic and metabolomic) beyond markers measured in routine geriatric care while considering the potential for two different clinical frailty phenotypes

**Methods:** A prevalent case-control study in stored biospecimens (urine, whole blood, cells, plasma and serum) from a cohort of 1522 individuals [identified as either robust (R), pre-frail (P), or frail (F)] from the Toledo Study of Healthy Aging (TSHA: R = 178/P = 184/F = 109), 3 City Bordeaux (111/269/100), Aging Multidisciplinary Investigation (157/79/54) and In CHIANTI (106/98/77) cohorts. More than 35,000 'omic' and routine laboratory variables from participants diagnosed as either frail or pre-frail (with and without disability) and those from robust individuals using a machine-learning framework.

**Results:** While considering individuals with disability and only features available in more than one cohort we identified three protective biomarkers, vitamin D3 (OR: 0.81 [95% CI: 0.68-0.98]), lutein zeaxanthin (OR: 0.82 [95% CI: 0.70-0.97]), and miRNA125b-5p (OR: 0.73, [95% CI: 0.56-0.97]) as well as one risk biomarker, cardiac troponin T (OR: 1.25 [95% CI: 1.23-1.27]). When individuals with disability were excluded, one protective biomarker was identified, miR125b-5p (OR: 0.85, [95% CI: 0.81-0.88]), while three biomarkers for risk of frailty were detected: pro-BNP (OR: 1.47 [95% CI: 1.27-1.7]), cardiac troponin T (OR: 1.29 [95% CI: 1.21-1.38]), and sRAGE (OR: 1.26 [95% CI: 1.01-1.57]).

**Conclusion:** Three key frailty biomarkers emerged as demonstrating a statistical association with frailty (oxidative stress, vitamin D, and cardiovascular system) with the patent of relationships differing depending on the presence or absence of disability.

Word count: 268

Keywords: Frailty, biomarkers, omics, clinical phenotypes, disability

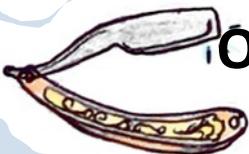
**Methods:** Explain how did you perform the study, test hypothesis or answer the question

**Conclusion:** Explain what do your results mean, what value do they add to the scientific literature, putting the results in general context. Add a couple of sentences providing a broader perspective to make it comprehensible to any scientist in any discipline

**Background:** write a basic introduction to the field comprehensible to a scientist in any discipline. State what is the problem or rationale and why the research is important. Write two sentences of a more detailed background comprehensible to scientists in related disciplines

**Results:** Use one sentence to summarise the key findings and explain, using another two to three sentences, what the main result reveals

3



## Ockham's razor Principle

Cut the text to only essential components of your underlying finding or message. Distil the work to the most important findings while achieving the word count

4

## Diamond in the Rough

Give yourself time to produce your best work. Edit ruthlessly; polish your document until it shines



Use active voice when possible and always in past tense

