# Article information:

Effects of extended mixing processes on fresh, hardened and durable properties of cement systems incorporating fly ash | Scientific Reports
<https://www.nature.com/articles/s41598-023-33312-x>

# Article summary:

1. Fly ash is a byproduct of coal combustion and is widely used in the cement and concrete industries to improve performance characteristics. However, more than 70% of fly ash produced globally is not used, posing a disposal challenge and extra costs for power plants.

2. The partial replacement of Portland cement with fly ash can promote sustainability by lowering CO2 emissions and decreasing expenses associated with producing concrete and disposing of fly ash. It also improves the fresh properties and hardened performance of the hydrated product, resulting in superior concrete systems.

3. Ready-mixed concrete containing fly ash is widely used in infrastructure systems, but increasing discharge duration and number of drum revolutions can affect workability, leading to improper placement and consolidation that decreases compressive strength and durability. Improved workability can reduce construction expenses.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

该文章主要介绍了利用飞灰在水泥和混凝土行业中的应用，以及其对新鲜、硬化和耐久性能的影响。然而，该文章存在一些偏见和不足之处。

首先，该文章没有提到飞灰可能对环境造成的负面影响。虽然使用飞灰可以降低CO2排放和生产成本，但是如果处理不当，飞灰可能会污染土壤和水源。此外，该文章没有探讨使用飞灰是否会对人体健康造成潜在威胁。

其次，该文章过于强调了使用飞灰的优点，而忽略了其缺点。例如，在某些情况下，使用飞灰可能会导致混凝土强度下降或者延长混凝土的固化时间。此外，在某些地区，由于供应不足或者质量问题，使用飞灰可能并不划算。

最后，该文章没有充分考虑到混凝土行业中其他替代材料的发展。除了飞灰之外，还有其他替代材料可以用于生产混凝土，并且这些材料可能具有更好的性能或者更低的环境影响。

综上所述，该文章存在一些偏见和不足之处，读者需要谨慎对待其中的观点。在使用飞灰或其他替代材料时，应该充分考虑其优缺点，并采取适当的措施来减少环境污染和人体健康风险。

# Topics for further research:

* Environmental impact of fly ash
* Potential health risks of using fly ash
* Drawbacks of using fly ash in concrete production
* Alternatives to fly ash in concrete industry
* Consideration of other substitute materials in concrete production
* Balanced approach to using fly ash and other substitute materials

# Report location:

<https://www.fullpicture.app/item/9941cf52560593c0300e678bad314d4f>