



## Weak Things Can Be Strong

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### Abstract:

A lot of power lies hidden within us, but it is unfortunate that many of us don't realize it. Although some people know about it, they never try to bring it out and use it in a beneficial way because they don't value it much. This article attempts to show, through a small experiment, how much hidden potential we have that is being wasted, unused, and unrecognized. Through this article, we would also like to drive home our point that when we are able to use the magnitude of our energies in one particular direction, we can succeed in our endeavors.

**Keywords:** Motivation, Hidden Strength, Hidden Power, Papers and Their Power, Weak and Strong, Potential, Strength of structures.

### I. INTRODUCTION:

One of the aspects of science is that it can reveal the hidden power of things. It also explains the direction and magnitude hidden in every small thing [1]. We would like to explain how much power lies hidden in human beings when compared to that of small pieces of paper.

How much strength or power do you think a small piece of paper can have? Of course, you think they possess very little strength or no power at all, right? Some people may think that it has no strength at all and that it cannot even carry the weight of a small pen. But in this article, we are going to show how much strength those very small pieces of paper acquire when they are rolled into cylindrical pillars. Things can acquire strength by bringing about certain structural changes in them[2], [3].

There must be some strong motive for people to do any work. They must also have some continued motivation to remain themselves focused on the work they do. They must see that their commitment lasts until they finish the work. As many of them don't have this resolve, they fail in their work. When people face problems in their work, they may either fall down or step back.

Let us see a simple but great example of it by using a small, weak piece of paper. We all know that paper is a very thin layer. If any object with a little weight is put on the paper, it will bend or tear down because it has very little power or strength. But how can we increase the strength of the paper?

Can you strengthen a sheet of paper? Do you know what to do to strengthen it? Yes, we can. We can strengthen a sheet of paper by rolling it into a hollow cylinder or a strut. When a sheet of paper is flat, it is weak in all directions. However, if it is shaped into a cylindrical, triangular, rectangular, or zig-zag shape, it becomes stronger and stiffer [4].

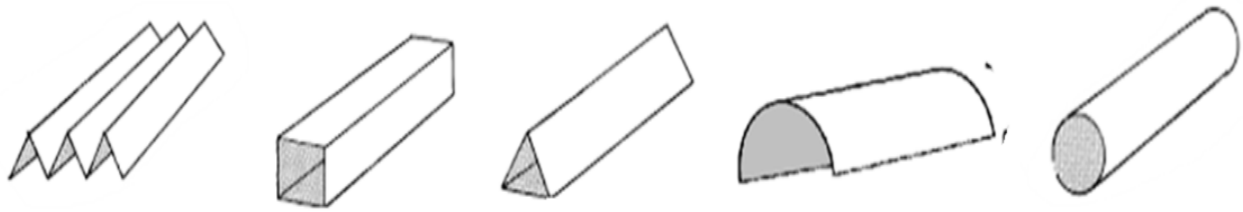


Fig.1 Strength of structures

We can strengthen materials through different methods. Materials, such as a piece of paper in the present case, can be strengthened by rolling it into a cylindrical-shaped tube. Such a tube or pipe of paper acquires maximum strength. As these pipes of paper don't have any edges or corners, when some weight is loaded on them, the weight is distributed evenly on the circular surface of the cylindrical shapes. This is the reason why civil engineers, even in ancient times, made use of pillars that were cylindrical or rectangular in shape [5].

Some of us may have the opinion that the shape of things doesn't make much difference when it comes to the strength of materials. But the shape and structure of things matter a lot. Let us have a look at our paper building. It will change our perception. We think of some materials as strong and some as weak, but the shape of the materials can be just as important as the materials themselves in terms of strength [6].



Fig.2. Strength of paper pillars

## II. STRENGTH OF MATERIALS VS STRENGTH OF STRUCTURES:

Through this experiment, we have seen here that only a few papers are carrying thousands of papers. In general, however, a paper does not even carry its own weight. But that was not the case here. If we compare a piece of paper to a person with a weight of 1kg, he is able to carry a weight that is 1000 times greater than his own weight. Did you understand the difference? Let us know the power of structures. Not only the nature of the material but also the structure of the material by which it is built increases its strength

immensely. Let us recognize our power in a particular direction or field. There is no one better than us in that regard[7].

We can see many human achievements as real-time examples of this. Firstly, we are capable of launching rockets weighing nearly 10,000 kg, making them navigate perfectly on their projectile or in the prescribed orbit, and making them land wherever we want them to land, be it on the moon or on other planets. Secondly, we are able to redirect the course of certain asteroids, meteors, and comets that come our way, which have the potential to create havoc on the planet Earth. Imagine asteroids the size of Madagascar hitting the earth. It can literally obliterate life from the face of the earth. What could be a more menacing threat than this?

Finally, we made it possible to have floating towns on the seas. Isn't it a beautiful sight to cherish huge cruises with long rows of windows appearing bright from electric light while moving afar on the waters against the backdrop of a dark night with twinkling stars?

As seen above, a sheet of paper is strengthened by rolling it several times, similarly, if we orient all our energies towards the work on hand, the hidden potential in us comes out and makes us more powerful and stronger. We can do great things if we can mould or turn all our skills in one particular direction. If we do so, however big or difficult the tasks can be, they can't crush us down, instead, we can crush them into pieces. If a few pieces of paper could bear the weight of that many record books, then think about how powerful a human body could be, both physically and mentally.

The strength of a material is the ability of that material to withstand applied stress without failure. Sometimes materials gain strength if we make certain changes in their structure. Sometimes they acquire strength by freezing, by solidifying, or by burning them in furnaces. One way to strengthen it is to bend it or ridge it.



Fig.3. Real-time examples of corrugated structures

The struggles we face bring out the strength within us. So, accept the struggles that you come across in life. Face them with all your knowledge, skills, might, and main and thus become strong.

### III. CONCLUSIONS:

We can assume and allude the qualities of materials to our own selves. For us, to fold or to bend a material means, to live humbly, to moderate ourselves in all things, to be faithful to all, to be obedient to the word of your conscience, to practice patience in all things, to pay attention to what we do and finally to keep hope in the results.

Finally,

***“Know your strengths and strengthen them further.”***

***“The origin of strength is not in the muscles but in the mind.”***

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