Women in Space!

WOMAN is a mother, a daughter, a sister and a wife. In fact, woman is the root of the family. Women have been working on an equal footing with their male counterparts and contributing to various fields like engineering, medicine, education or...
politics. Even in the much demanding and tough field of space exploration women have made tremendous contributions. Most of these women went unnoticed even though they played an important role in the history of space exploration.

It has been shown that biologically a female can do better in space exploration. In the environment of space, a woman, because of her nature, can adapt to various factors such as heat, spacecraft tremors etc better compared to a man. A woman is less prone to space radiations also. And a woman weighing 120 pounds consumes less oxygen compared to a man of 160 pounds. The lesser weight of women is itself a significant advantage in the environment of space.

Men are also disadvantaged because they retain much higher levels of iron in the body than women, particularly in space, and this can reach toxic levels. Men in their thirties and forties are much more likely to develop the first signs of heart disease, a condition exacerbated by space travel. Women are protected from this by their comparatively high levels of oestrogen.

Yet, there were several women who never got a chance to enter into space despite having passed the most stringent of tests. In 1961, 13 women aviators were extensively tested for their physical and psychological tolerance to the then-unknown rigors of space flight. The first woman to go through the Mercury 13 astronaut test was Jerrie Cobb. A 28-year-old pilot, with three world records, and 7,000 hours of flying time, Jerrie Cobb had ice water injected into her ears to test her balance. She, as well as Wally Funk, were the only women who successfully completed the tests used for the original seven Mercury astronauts. In spite of these women completing all three of the phases, and 11 other women completing Phase I, they would never get the chance to go into orbit.

The year 1950 is of great significance because the year marked the beginning of a new era of space age with the launch of Sputnik. Those were times when no one could even dream of humans going out into space much less coming back unscathed. But soon after Yuri Gagarin had stepped into space, Valentina Tereshkova became the first woman to enter space paving the way for many more women to brave the harsh conditions of space in the years to come.

After that there was no looking back for women in the field of space exploration. As on January 2011, around 520 persons had gone into space through 282 manned space flights. Of these 56 are women from various countries like Russia, USA, Canada, France, Japan, Korea and Britain.

Women have played a major role in the Space Shuttle mission's assembly of MIR and International Space Station (ISS), deployment of space telescopes and repairs of Hubble telescope. In shuttle and space station missions they have played the role of commander, pilot, mission specialist and payload specialist. Eileen Collins was the first space shuttle commander and Peggy Whitson was the first International Space Station Commander.

For carrying out repair works on space stations, 11 women have performed 29 space walks (also called Extravehicular Activity—EVA) amounting to 188 hours and 10 minutes duration. Sunita Williams stayed in space (at one stretch) for 194 days 18 hours and Peggy Whitson had a total stay in space (through all her space flights) of...
Women in Important Space Missions

1. Space Shuttle: The first woman commander and pilot of a shuttle mission was Eileen Collins. She has commanded shuttle missions twice. The second woman commander of a shuttle mission was Pamela Melroy.

2. International Space Station: a. Peggy Whitson is the first and the only woman who has been the commander of ISS (International Space Station), in the year 2008.
b. The first woman to go to the International Space Station was Susan Helms who lived there from March 2001 to August 2001.
c. Till date some 31 women have visited the International Space Station and done assembly and maintenance works.

3. Space Tourist: The first woman space tourist was Anouseh Ansari (of Iranian origin and now a US citizen).

4. MIR: Dr. Shannon Lucid spent 188 days on the Russian space station MIR.

5. Maximum number of women in orbit: The presence of four women in space at one time during the space shuttle mission STS-131 in 2010 set a record for the most women in space at the same time. These women were Dorothy Metcalf-Lindenburger, Stephanie Wilson, Naoko Yamazaki and Tracy Caldwell. In another instance, during a space shuttle mission, nearly 2/3rd of the flight control team were women including the launch commentator, ascent commentator, the flight director and communicator between crew and mission control.

Stay in Space

Many women have stayed in space for long durations in one single space flight. Valentina Tereshkova stayed in space for 2 days and 22 minutes while the second woman Svetlana Svetskaya stayed for 7 days 21 hours. The longest single flight stay record is with Sunita Williams and the record is of 194 days 18 hours. The single flight space stay records have been given in Table 1.

The total flight duration (i.e. cumulative) records of women astronauts are more interesting. In this, Peggy Whitson tops with total flight duration of 376 days and 17 hours. Peggy Whitson also has also been the commander of the International Space Station (ISS) “ALPHA”. At second and third number are Shannon Lucid and Elena Kondakova whose cumulative flight duration is 2957 days and 17 hours (roughly 8 years) in space.
In several instances over several space missions, women astronauts have been found to have an edge over their male counterparts both biologically and psychologically.
Space Walks by Women

Now, what is a space walk? Well, coming out of the spacecraft and performing assembly, repair and deployment is generally referred to as space walk or EVA (Extra Vehicular Activity). It is an extremely important part of human space flight for assembling space stations and servicing of various space telescopes like Hubble Space Telescope (HST).

Initial problems in the Skylab mission, the assembly of Mir and the International Space Station (ISS) could only be done through space walks. The space environment is hostile and dangerous for human beings. For coming out in free space one has to wear special space suits and lots of safety precautions have to be exercised.

Till date, 11 women have performed space walks. The first woman to do a space walk was Svetlana Svetskaya from the Soviet Union. The first American woman to do a space walk was Kathryn Sullivan.

In the environment of space, a woman, because of her nature, can adapt to various factors such as heat, spacecraft tremors etc better compared to a man.

Peggy Whitson is considered to be a great space walker amongst women astronauts. She has done six space walks of a total duration of 39 hours and 44 minutes. The details of space walks performed by women are given in Table 3.

In November 1984, Dr. Anna Fisher became the first person to retrieve a malfunctioning satellite with the remote manipulator arm. This became the first “salvage” mission. Dr. Rhea Seddon became the first to try a satellite repair out of the earth’s atmosphere with the remote manipulator arm. She designed a makeshift “fly swatter” contraption space
Some Interesting Records

Women astronauts hold some other interesting records too. Among the 20 oldest astronauts (on launch day among both males and females), Barbara Morgan comes at the 16th place while John Glenn (male astronaut) comes at the first place. Among the 20 youngest astronauts, Valentina Tereshkova is the second, Helen Sharman the fifth, Yi Soyeon the 12th and Sally Ride the 20th.

Two women, Tracy Caldwell and Janet Kavandi, have celebrated their birthdays in space. Caldwell celebrated her birthday two times while Kavandi celebrated her birthday once. Five women have enjoyed New Year (each one time) in space. These women are Catherine Coleman, Elena Kondakova, Sandra Magnus, Peggy Whitson and Sunita Williams.

Till January 2011, women from seven different countries had gone into space and these women have passed a total of 2957 days and 6 hours in space, collectively. These details are given in Table 4.

Space was one male bastion that seemed to be impossible for women to conquer. But today, in several instances over several space missions, women astronauts have been found to have an edge over their male counterparts both biologically and psychologically. These women have helped future generations to realise that these occupations could be successfully held by women.

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