James Lind, from *A Treatise of the Scurvy, 1753*

James Lind (1716-1794) was a Scottish naval surgeon. Lind's experiments on scurvy, conducted in 1747 while serving on the HMS Salisbury, demonstrated that citrus could eliminate the disease, which caused bleeding gums, loose teeth, sore joints, and hemorrhaging. Citrus's benefits had been known to sailors in earlier centuries, and Lind's work, although published in a 1753 treatise, did not change official policy until 1795, when the Admiralty ordered ships to be supplied with citrus juice. This decision eliminated scurvy and reduced by half the number of sailors admitted to infirmaries. Lind also experimented on distilling fresh water from salt water and published works on improving the health of sailors.


**OF THE PREVENTION OF THE SCURVY**

I shall conclude the precepts relating to the preservation of seamen with showing the best means of obviating many inconveniences which attend long voyages and of removing the several causes productive of this mischief.

The following are the experiments. On the 20th May, 1747, I took twelve patients in the scurvy on board the Salisbury at sea. Their cases were as similar as I could have them. They all in general had putrid gums, the spots and lassitude, with weakness of their knees. They lay together in one place, being a proper apartment for the sick in the fore-hold; and had one diet in common to all, viz., water gruel sweetened with sugar in the morning; fresh mutton broth often times for dinner; at other times puddings, boiled biscuit with sugar etc.; and for supper barley, raisins, rice and currants, sago and wine, or the like. Two of these were ordered each a quart of cyder a day. Two others took twenty five gutts of elixir vitriol three times a day upon an empty stomach, using a garge strongly acidulated with it for their mouths. Two others took two spoonfuls of vinegar three times a day upon an empty stomach, having their gruels and their other food well acidulated with it, as also the garge for the mouth. Two of the worst patients, with the tendons in the ham rigid (a symptom none the rest had) were put under a course of sea water. Of this they drank half a pint every day and sometimes more or less as it operated by way of gentle physic. Two others had each two oranges and one lemon given them every day. These they eat with greediness at different times upon an empty stomach. They continued but six days under this course, having consumed the quantity that could be spared. The two remaining patients took the bigness of a nutmeg three times a day of an electuary recommended by an hospital surgeon made of garlic, mustard seed, rad. rapham., balsam of Peru and gum myrrh, using for common drink
barley water well acidulated with tamarinds, by a decoction of which, with the addition of cream of tartar, they were gently purged three or four times during the course.

The consequence was that the most sudden and visible good effects were perceived from the use of the oranges and lemons; one of those who had taken them being at the end of six days fit for duty. The spots were not indeed at that time quite off his body, nor his gums sound; but without any other medicine than a gargarism [something to gargle with] or elixir of vitriol he became quite healthy before we came into Plymouth, which was on the 16th June. The other was the best recovered of any in his condition, and being now deemed pretty well was appointed nurse to the rest of the sick...

As I shall have occasion elsewhere to take notice of the effects of other medicines in this disease, I shall here only observe that the result of all my experiments was that oranges and lemons were the most effectual remedies for this distemper at sea. I am apt to think oranges preferable to lemons, though it was principally oranges which so speedily and surprisingly recovered Lord Anson’s people at the Island of Tinian, of which that noble, brave and experienced commander was so sensible that before he left the island one man was ordered on shore from each mess to lay in a stock of them for their future security...Perhaps one history more may suffice to put this out of doubt.