OASI News

The newsletter of Orwell Astronomical Society (Ipswich)

A bumper month for ISS observers. Several ISS passes visible on most days in July. Details inside.

A still taken from a video of the ISS transiting the Moon by Martin Cook on 2023 May 27. The duration of the transit was 0.6 s. The event was predicted by the ISS transit finder website: https://transit-finder.com.

(Skywatcher PDS 200 mm telescope and ZWO ASI178mm camera)

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Society Notices

Dear Members,

So summer has finally arrived! However, there is still plenty to look out for in the night sky during July, including *Noctilucent Clouds* and the International Space Station. If you manage to capture any photos, please send them to us for publication in the Newsletter and website.

Let's hope that the weather remains fine for our Summer Picnic at Newbourne on Saturday 8 July. This is open to all members and their families and it would be great to see you there!

Former member of the Ipswich and District Astronomical Society and current member of OASI, John Barbrook, has kindly donated a 200mm Skywatcher reflector on a HEQ5 mount, pictured left.

Former member of OASI, Derk Noske, has also donated a 280mm Schmidt-Cassegrain telescope on a heavy duty go-to equatorial mount.

A huge thank you to both John and Derk.

Andy Gibbs, Chairman

Society Contact details

Email queries: info@oasi.org.uk

Facebook: Orwell Astronomical

Twitter: @OASIpswich

YouTube: https://www.youtube.com/channel/UCHgxe3QAeRVWf7vkjKkCl2Q

Members-only message board

https://groups.io/g/OASI

Observatory (meeting nights only)

07960 083714

Please send material for the OASI web site and newsletter e.g. observations, notices of events, general interest articles, to news@oasi.org.uk

The CLOSING date is the 15th day of the month

Access into the School Grounds and Observatory Tower

Orwell Park School have changed our access route to the observatory.

The new route will be as follows:-

- Enter through gate 2 (gate 1 being the main gate) and park inside as per the attached map.
- Enter the school through the double black doors as indicated on the map. A key fob will be required to open the door.
- Continue straight through the next two sets of double doors.
- Turn left at the end of the short corridor then immediately right.
- Pass through the single door and on your left you will find the staircase leading to the observatory.
- On no account must you deviate from this route.

When leaving the observatory use the same route but in reverse. Please keep noise to a minimum as there are staff quarters nearby.

Articles for OASI News

News, pictures and articles for this newsletter are always welcome. Details above.

Please send tables as separate files in one of the above formats.

If you don't feel up to writing a major article, perhaps you might write a short note for OASI News along the lines of "This month I have mostly been observing/constructing/mending/reading/etc."

The Newsletter archive is at www.oasi.org.uk/NL/NL_form.shtml

Authors, please note that your articles will be publicly available worldwide!

Reproducing articles from OASI News

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Committee 2023

Chairman	AndyGibbs	Set overall agenda for OASI, Chair committee meetings, Press and publicity
Secretary	RoyGooding	Outreach meetings (jointly with Chairman), observatory decoration
Treasurer	PaulWhiting	Finance, Supervision of applications for grants. Visits by outside groups, Observatory tours, Public appreciation of astronomy, Outreach activities
Committee	James Appleton	Committee meeting minutes, Web site
	MartinCook	Membership, Tomline refractor maintenance & user testing
	Matt Leeks	Safety & security
	Peter Richards	Lecture meetings, Email distribution lists
	John Wainwright	Equipment curator
	Mike Whybray	Astronomy Workshops, Child protection officer, Orwell Park School Astronomy Club
	Andy Willshere	Librarian
		Newsletter, OASI @ Newbourne
		For newsletter and Newbourne please contact Paul Whiting,

Committee Meeting

The next Committee Meeting will be on Friday 1st September at 8:00pm via Zoom. All members welcome.

Welcome to new members

Neal Gordon

OASI and BAA Events

For the latest event details, please see www.oasi.org.uk/Events/Events.php

There's a Google Calendar on the OASI web site with the latest dates.

If you want to easily add OASI Events to your own computer/phone/tablet calendar application click this button on the website Events page (bottom right of the calendar) or use this address to access this calendar from other calendar applications:

https://calendar.google.com/calendar/ical/1jhs9db71ncki4sojo7092vfvc%40group.calendar.google.com/public/basic.ics

For other astronomy news and astro pictures try our

Twitter feed	https://twitter.com/OASIpswich
Facebook page	https://www.facebook.com/pages/Orwell-Astronomical/158256464287623

Date, Time & Location	Contact	Event
Weekly, every Wednesday, from 20:15	Martin Cook, Roy Gooding	Observatory open
Sat 08 Jul 2023 13:00-20:00 Newbourne Village Hall	Pete Richards lectures@oasi.org.uk	Summer picnic, open to all members of OASI and their guests. Bring your own food, and bring a portable barbeque if you want to do some cooking!
Mon 10 Jul 2023 19:30 Newbourne Village Hall	Paul Whiting newbourne@oasi.org.uk	Newbourne meeting - beginners welcome!
Thu 20 Jul 2023 20:00 Zoom	Paul Whiting treasurer@oasi.org.uk	Monthly Zoom meeting. Zoom talk (recorded) Dr Chuck Higgins: *Citizen Science and Radio Jove – Radio Exploration of Jupiter*.
Mon 24 Jul 2023 19:30 Newbourne Village Hall	Paul Whiting newbourne@oasi.org.uk	Newbourne meeting - beginners welcome!

Venus will be in inferior conjunction with the Sun on 13 August 2023. As the planet approaches conjunction, I like to take a series of images showing the decrease in phase and the increasing apparent diameter of the disc.

The first of my images, taken yesterday, shows Venus shining at mag -4.46, 45 degrees elongation, showing a 46.2% phase and presenting a 25.3 arcsecond disc.

Equipment used: QHY 5 II L camera, Meade 200mm LX200 ACF telescope, with 2.5x Barlow Lens.
Captured and processed in: Sharpcap 4, Autostakkert 3, Registax 6 and Affinity Photo 2.

Andy Gibbs.

OASI @ Newbourne

newbourne@oasi.org.uk

We meet at Newbourne Village Hall, Mill Lane, IP12 4NP on the 2nd and 4th Mondays from 19:30.

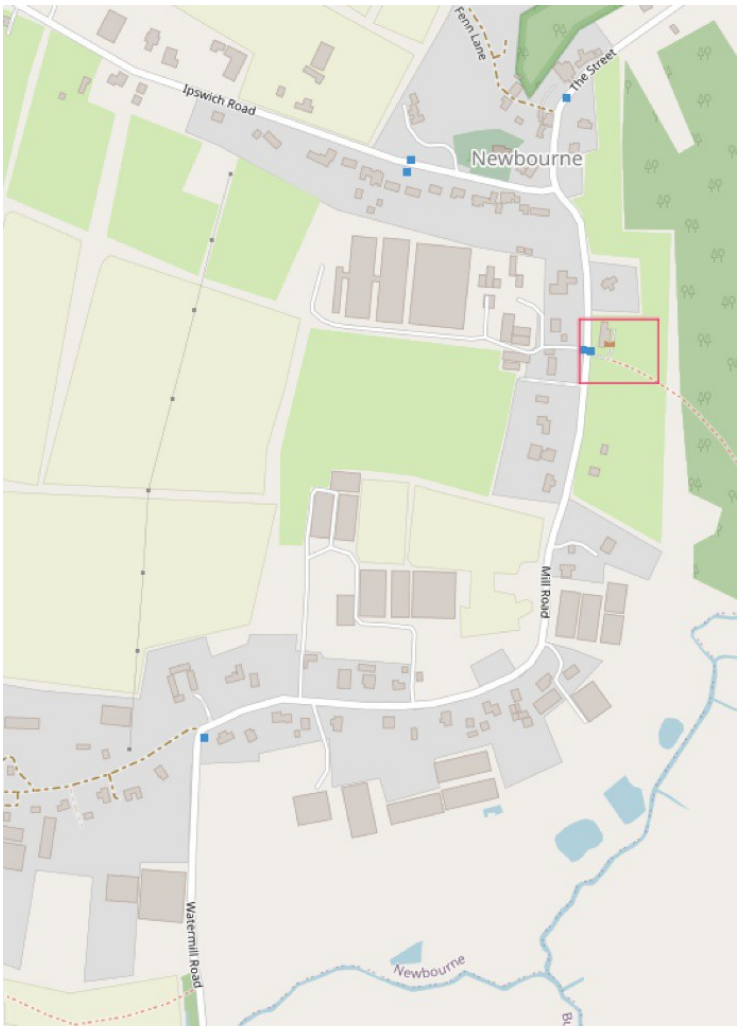
Visitors are welcome but we do ask you to join the Society after two visits.

http://www.oasi.org.uk/OASI/Membership.php

Newbourne dates for 2023

July	10	24 (S)
August	14	28 (S/A)
September	11	25 (S)
October	9 (T)	23 (S/A)
November	13	27 (S)
December	11 (A/Q)	

We open up for all meetings at 7:30pm. Astro News (A) / Star Guide (S) at 7:45pm followed by any Talks (T), Workshops (W) and occasional Quiz (Q).



OASI Picnic – Saturday 8th July 2023

Time: 1pm to Late
Venue: Newbourne Village Hall

OASI members and their family and friends are all invited.

If skies are clear the club's telescopes (both solar and traditional) will be available for anyone who is interested, or bring your own.

Bring your own picnic food and drink, and chairs and mats etc. Note that there will be no barbecue this year, but feel free to bring your own portable barbecue to cook your own.

There will be a quiz in the evening.

Summer Lectures – via Zoom

Thursday 20th July 2023 – Zoom Talk (Recorded)

"Citizen Science and Radio Jove – radio exploration of Jupiter"
with Dr Chuck Higgins

Thursday 17th August 2023 – Zoom Talk (Recorded)

"Imaging of Black Holes with the Event Horizon Telescope"
with Dr Ziri Younsi

Staring 20:00. Standard Zoom meeting details

BAA news & webinars

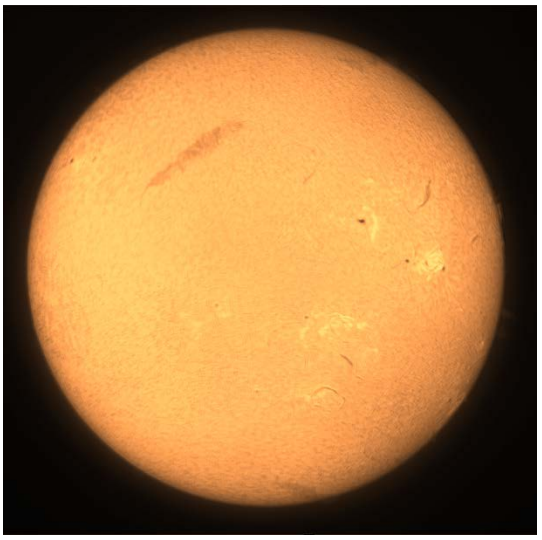
For full details of all meetings or cancellations, please go to https://britastro.org/events/future-events

8 July 2023 Comet Section Meeting, National Maritime Museum, Greenwich.

The BAA Radio Astronomy Section

The BAA Radio Astronomy Section have been enjoying talks, seminars and tutorials via Zoom and these are available on the BAA YouTube channel
https://www.youtube.com/user/britishastronomical/playlists.

Solar Outreach at Christchurch Mansion, Ipswich



Mike Whybray

Solar image by Martin Cook. ZWO ASI178MM camera and Lunt LS60THa/B1200 Hydrogen Alpha telescope. Software used: Sharpcap 4, Autostakkert 3 and Registax 6. Colourized by the editor.

The Night Sky in July 2023

All event times are for the location of Orwell Park Observatory 52.0096°N, 1.2305°E.
Times are **BST** unless otherwise stated.

Sun, Moon and planets

Sources: http://heavens-above.com/PlanetSummary.aspx http://heavens-above.com/moon.aspx

July 2023

Object	Date	Rise	Set	Mag.	Notes
Sun	1	04:39	21:18		
	31	05:15	20:47		
Moon	1	02:13	19:54		Full Moon 03 July 12:39 Perigee 04 July 23:26 Last Quarter 10 July 02:48 New Moon 17 July 19:32 Apogee 20 July 07:57 First Quarter 25 July 23:07
	31	02:32	22:46		
Mercury	1	04:35	21:23	-2.1	
	31	07:45	21:33	0.2	
Venus	1	08:31	23:09	-4.3	
	31	07:31	20:45	-4.1	
Mars	1	08:48	23:22	1.7	
	31	08:37	21:55	1.8	
Jupiter	1	01:36	15:56	-2.1	
	31	23:44	14:22	-2.2	
Saturn	1	23:47	09:59	0.8	
	31	21:48	07:53	0.6	
Uranus	1	01:59	17:10	5.8	
	31	23:59	15:18	5.8	
Neptune	1	00:23	11:59	7.9	
	31	22:21	09:59	7.8	

Occultations during July 2023

https://iota-es.de/moon/grazing_descrx101.html and http://www.lunar-occultations.com/iota/bstar/bstar.htm

Observers are encouraged to download and install the Occult software program [Windows only] to generate predictions for their own particular site coordinates.

Meteor showers during July 2023

Shower	Normal limits	Maximum	ZHR at Max	Notes
α Capricornids	3 Jul -15 Aug	30 Jul	5	Yellow slow fireballs
δ Aquariids	12 Jul - 23 Aug	30 Jul	25	Steady stream of meteors over several days but a low rate per hour
Perseids	17 Jul - 24 Aug	12-13 Aug	100	Many bright fast meteors with trains. Associated with Comet Swift-Tuttle

See also https://www.rmg.co.uk/stories/topics/meteor-shower-guide

For radio observation, use reflections from Graves Radar on 143.049MHz or the Brams transmitter in Belgium on 49.97MHz and UK GB3MBA on 50.408MHz https://www.ukmeteorbeacon.org/Home

See also https://www.popastro.com/main_spa1/meteor/radio-meteor-observing-2020/.

Comets

Source : https://heavens-above.com/Comets.aspx on 20 June.

Comet	Brightness	Date of last reported observation	Angular separation from Sun	Constellation

Nothing brighter than mag 10 this month

Visible ISS passes >30° max altitude for July 2023

Source: http://heavens-above.com/PassSummary.aspx?satid=25544

Times are **BST**.
Predictions are approximate (20 June) due to craft adjustments. Check the day before.

Date	Bright–ness	Start			Highest point			End		
	(mag)	Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
01-Jul	-3.4	03:48:29	10°	SW	03:51:43	49°	SSE	03:54:57	10°	E
02-Jul	-3	03:00:42	16°	SW	03:02:56	36°	SSE	03:06:03	10°	E
03-Jul	-2.6	02:13:22	24°	S	02:14:11	26°	SSE	02:17:02	10°	E
03-Jul	-3.8	03:47:15	10°	WSW	03:50:36	73°	SSE	03:53:55	10°	E
04-Jul	-3.7	02:58:47	13°	WSW	03:01:42	60°	SSE	03:05:00	10°	E
05-Jul	-3.5	02:11:17	25°	SW	02:12:50	46°	SSE	02:16:03	10°	E
05-Jul	-3.8	03:46:04	10°	W	03:49:26	87°	S	03:52:46	10°	E
06-Jul	-3.1	01:23:41	33°	SSE	01:23:57	34°	SSE	01:27:01	10°	E
06-Jul	-3.9	02:57:06	10°	W	03:00:27	81°	S	03:03:47	10°	E
07-Jul	-3.9	02:08:48	15°	WSW	02:11:28	70°	SSE	02:14:48	10°	E

07-Jul	-3.8	03:44:48	10°	W	03:48:09	82°	S	03:51:30	10°	E
08-Jul	-3.8	01:20:54	27°	SW	01:22:29	57°	SSE	01:25:47	10°	E
08-Jul	-3.8	02:55:47	10°	W	02:59:07	87°	S	03:02:29	10°	E
09-Jul	-3.5	00:32:41	35°	SSW	00:33:30	43°	SSE	00:36:42	10°	E
09-Jul	-3.9	02:06:44	10°	W	02:10:04	86°	S	02:13:26	10°	E
09-Jul	-3.8	03:43:26	10°	W	03:46:45	62°	SSW	03:50:03	10°	ESE
09-Jul	-3.1	23:43:32	26°	S	23:44:32	32°	SSE	23:47:34	10°	E
10-Jul	-3.9	01:17:40	10°	WSW	01:21:01	79°	S	01:24:21	10°	E
10-Jul	-3.9	02:54:21	10°	W	02:57:42	75°	S	03:01:01	10°	ESE
11-Jul	-3.9	00:28:36	10°	WSW	00:31:56	67°	SSE	00:35:15	10°	E
11-Jul	-3.9	02:05:15	10°	W	02:08:36	84°	S	02:11:57	10°	E
11-Jul	-3.3	03:42:00	10°	W	03:45:08	38°	SSW	03:48:16	10°	SE
11-Jul	-3.7	23:39:35	10°	WSW	23:42:51	53°	SSE	23:46:08	10°	E
12-Jul	-3.9	01:16:08	10°	W	01:19:29	87°	S	01:22:49	10°	E
12-Jul	-3.7	02:52:50	10°	W	02:56:05	51°	SSW	02:59:20	10°	ESE
12-Jul	-3.4	22:50:37	10°	SW	22:53:47	40°	SSE	22:56:56	10°	E
13-Jul	-3.9	00:26:58	10°	W	00:30:19	85°	S	00:33:40	10°	E
13-Jul	-3.9	02:03:40	10°	W	02:06:59	66°	SSW	02:10:18	10°	ESE
13-Jul	-2.9	22:01:47	10°	SSW	22:04:43	29°	SSE	22:07:41	10°	E
13-Jul	-3.9	23:37:49	10°	WSW	23:41:09	77°	SSE	23:44:30	10°	E
14-Jul	-3.9	01:14:29	10°	W	01:17:50	78°	S	01:21:10	10°	ESE
14-Jul	-3	02:51:18	10°	W	02:54:16	30°	SSW	02:57:15	10°	SE
14-Jul	-3.8	22:48:39	10°	WSW	22:51:58	64°	SSE	22:55:17	10°	E
15-Jul	-3.9	00:25:17	10°	W	00:28:38	85°	S	00:31:59	10°	E
15-Jul	-3.4	02:02:00	10°	W	02:05:11	41°	SSW	02:07:09	19°	SE
15-Jul	-3.6	21:59:33	10°	SW	22:02:48	50°	SSE	22:06:03	10°	E
15-Jul	-3.9	23:36:02	10°	W	23:39:24	87°	S	23:42:45	10°	E
16-Jul	-3.8	01:12:45	10°	W	01:16:01	55°	SSW	01:16:57	38°	SE
16-Jul	-3.9	22:46:48	10°	W	22:50:09	83°	S	22:53:30	10°	E
17-Jul	-3.9	00:23:28	10°	W	00:26:48	69°	SSW	00:28:22	28°	ESE
17-Jul	-3.8	21:57:32	10°	WSW	22:00:52	74°	SSE	22:04:12	10°	E
17-Jul	-3.9	23:34:11	10°	W	23:37:32	80°	S	23:40:09	16°	ESE
18-Jul	-2.5	01:10:57	10°	W	01:12:56	26°	WSW	01:12:56	26°	WSW
18-Jul	-3.8	22:44:53	10°	W	22:48:14	86°	S	22:51:36	10°	E
19-Jul	-3.5	00:21:35	10°	W	00:24:49	45°	SSW	00:24:52	45°	SSW
19-Jul	-3.8	21:55:33	10°	W	21:58:54	87°	S	22:02:15	10°	E
19-Jul	-3.8	23:32:14	10°	W	23:35:32	59°	SSW	23:36:54	31°	SE
20-Jul	-3.8	22:42:52	10°	W	22:46:13	72°	S	22:48:57	14°	ESE

21-Jul	-3.8	21:53:29	10°	W	21:56:50	83°	S	22:00:11	10°	E
21-Jul	-3.1	23:30:13	10°	W	23:33:20	36°	SSW	23:33:52	33°	S
22-Jul	-3.4	22:40:45	10°	W	22:44:00	49°	SSW	22:45:58	21°	SE
23-Jul	-3.7	21:51:18	10°	W	21:54:37	63°	SSW	21:57:55	10°	ESE
24-Jul	-2.6	22:38:39	10°	W	22:41:35	28°	SSW	22:43:04	20°	SSE

Starlink passes

https://heavens-above.com/AllPassesFromLaunch.aspx

For a dynamic 3-D display, see https://heavens-above.com/StarLink.aspx

Bill Barton's Radio Broadcast

ICRFM (Ipswich Community Radio) 105.7 MHz at about 08:25 in the morning of the first Wednesday of each month. I aim to cover what there is to see in the sky and then a little bit on something topical. ICRFM is also available to listen to over the Internet and there is a listen again option on their website. http://www.icrfm.com

Forthcoming Outreach Programmes

All members are welcome to come along and help out at these events – you don't need to be an expert in the subject. Just respond to the email call for help prior to the event.

Please note that not all events are open to the public.

Sunday 22nd July

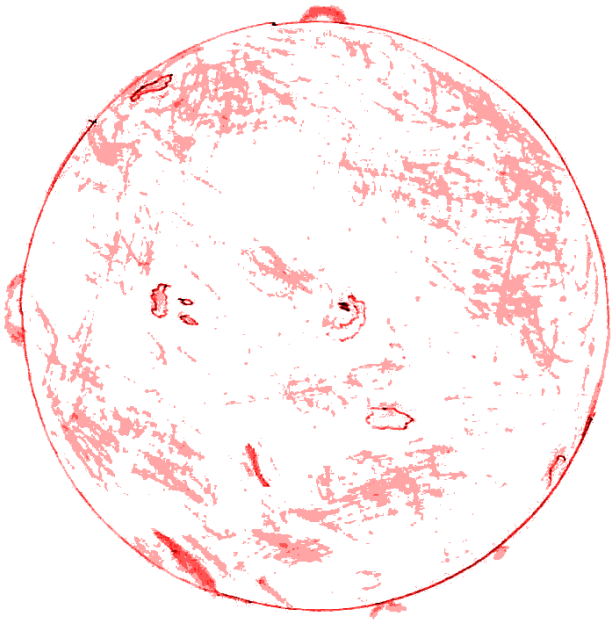
OASI headline at Latitude. Once again we will be a support act to a big-name astronomer. This year it's Prof Kevin Fong and Dr Stuart Clark. *Public Event*

Sunday 27th August

Solar event at Bawdsey Radar Museum. *Public Event.* 9.30 for 11am start. Follow AA signs from A12.

Friday 22nd September

Star Party at Thomas Mills School, Framlingham
A night time observing event, with lecture option if wet. More details to follow nearer to the date.
Private Event



Solar sketch completed on Sunday 4th June 2023 at 12:30-12:35 UT. I used the Society's Coronado PST Hydrogewn Alpha telescope. This is an introductory solar scope more intended for visual rather than photographic usage. A Meade 26mm Super Plossl eyepiece provided a magnification of 15.4x. The sketch was produced using a pencil and coloured crayons. The scanning process lost some detail but retained key features including prominances, plages, filaments and active regions. Clearly a lot was going on. The image was subsequently post-processed using gimp 2.6. It's true to say, I have a lot to learn about image post-processing but as a good chef may say, you need to start with good ingredients!

Neil Morley

In the early hours of 27 May, there was a bright Earth-grazing meteor above the Netherlands. This is the second Earth-grazer that OASI all-sky cameras have recorded, and it was very much brighter than the first (on 21 September 2020).

The image shows the spectacular image from Bussloo, NL, where the object passed virtually overhead. Members James Appleton and Alan Smith both recorded the event on their all sky cameras.

Research Carried Out On-board the International Space Station to Acquire Knowledge to Make Long Term Human Space Flights Safer on the Human Body.

A Library short article by Andy Willshere

Since the launch of the ISS and up to November 2022, there have been 2430 experiments performed. These are encompassed in many group headings, which are disparate in outcomes. This article is to provide a little more information about several of the more important projects that may have a direct effect on the human body in space. It will be essential that when long-term space flights are instituted, the human body will be able to function at its maximum. Research is therefore necessary for this to happen. Groups of experiments are all allocated the same launches and crew time allowing for equitability. All scientists connected to individual experiments are authorised to discuss trial adjustments with the crew and have access to data.

Picture credit: Space Station Assembly | NASA

One of the most important research experiments pertaining to the human body being run on the ISS is to consider how to prevent bone loss in space. For this particular experiment, preventative medicine was considered, by using bisphosphonate. This is a group of drugs that work by slowing down bone loss. A problem in space caused by bone loss could be hip and spine fractures. However, chemotherapy does come with side effects which can be muscle pain and headaches. Microgravity causes a reduction in calcium excretion which may increase the astronauts' susceptibility to kidney stones. Although 15 hours per week of physical exercise is routinely carried out while rotating around the Earth to help evade these problems, exercise is not the complete answer.

The body's skeleton is formed by living tissue which builds bone. Its function is to provide support and shape for the body and is capable of protecting some organs. It is also useful for storing calcium and other minerals, which construct bone density. Calcium also aids muscle contraction and assists nerve impulses. Bone also stores marrow, which develops and forms red and white blood cells as well as platelets.

It has been found that while the human body has existed in microgravity for a short period, some of the actions and functions of bone will alter. Because of weightlessness, support for body mass reduces as well as a reduction in stresses upon bone structure. This in time will reduce the amount of calcium stored in bones, breaking it down and releasing it into the blood stream. Blood can be taken from astronauts to ascertain how high the calcium content is, which conversely will indicate a decrease in bone density. This culminates in the inability of the bone structure to fully support the human body when back on Earth and therefore makes it more liable to fracture. Bone loss in space begins almost immediately and continues throughout the mission, it does peak between the second and fifth months. Data obtained from Mir (1986 – 2001 Russian low earth orbit space station) showed a loss of about 20% bone mass. This will almost replace itself either in many months or can take up to 3-4 years when back on Earth.

Bisphosphonate is a class of drugs that are used to treat osteoporosis which is a condition that results in easily breakable bone. The drug is absorbed into the body tissue, of which about 50% is passed through the kidney and excreted; the balance is swiftly absorbed onto the bone surface. It also has a half - life that can go beyond 10 years. This study is still ongoing with both JAXA and NASA crew volunteers, however early results do show a reduction in the loss of bone mass by using both resistive exercises and bisphosphonates.

A second experiment that is helping humans on Earth while research is being carried out on the ISS is the use of Cold Plasma. This is a method of using gases such as air, argon and helium and applying the gas over a wound by either irradiation or electric field. It is useful for biomedical use as it operates at low temperatures (<40°C). Treatment such as this would be extremely useful if chronic wounds were not responding to general treatments including surgical debridement. These wounds if not correctly treated could persist for long periods, reducing limb mobility. This effectively keeps patients out of the workforce and is expensive for healthcare organisations. Throughout the world, there are large numbers of chronic wounds and so the improvement to the healing process and society in general would be great.

Technology that has been devised on the ISS has aided in producing plasma – based apparatus to combat superbugs on Earth, and therefore making patient safety greater. By using this new concept, bacteria are inactivated and when used in small doses cancer cells can be destroyed. Throughout this treatment human tissue is left undamaged, and wound healing expedited. Inactivating bacteria has been found to be extremely useful when combating hospital acquired infections where antibiotic resistant strains of bacteria would normally prove fatal to some patients.

These are just two examples of how the ISS, research staff and crew have improved our knowledge about long - term exposure to space, which has directly improved both knowledge and patient treatments on Earth.

References:

Space Station Assembly | NASA
20 Breakthroughs from 20 Years of Science aboard the ISS | NASA
Space Station Research Experiments | NASA
Bisphosphonates | Side-effects, uses, time to work (versusarthritis.org)