

NIMBAL COMICS PRESENTS:

# PROFESSOR NIMBAL



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EXPLORATIONS IN:  
**CROHN'S &  
COLITIS**





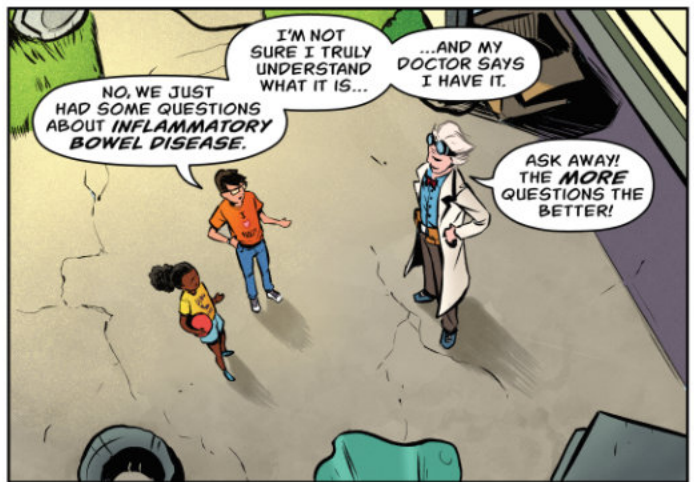
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WHAT'S AN IMMUNE SYSTEM?

ANOTHER EXCELLENT QUESTION!

THE IMMUNE SYSTEM IS YOUR BODY'S **DEFENSES** AGAINST INFECTIONS!



DEFENSES? YOU MAKE IT SOUND LIKE AN ARMY.



IT IS!

IT'S YOUR BODY'S ARMY, AIR FORCE, NAVY, AND MARINES!

COOL!

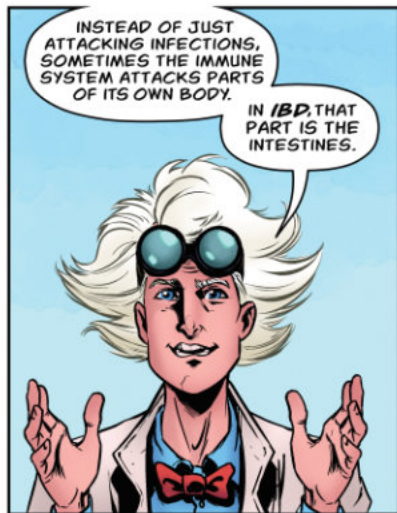


THE IMMUNE SYSTEM IS YOUR BODY'S TROOPS THAT PROTECT AGAINST INFECTIONS.

ANYTHING FROM THE COMMON COLD TO LIFE-THREATENING INFECTIONS.



IT USUALLY DOES A GREAT JOB OF PROTECTING US BUT SOMETIMES GETS A LITTLE CONFUSED.



INSTEAD OF JUST ATTACKING INFECTIONS, SOMETIMES THE IMMUNE SYSTEM ATTACKS PARTS OF ITS OWN BODY.

IN **IBD**, THAT PART IS THE INTESTINES.



THIS IS GETTING TOO CONFUSING...

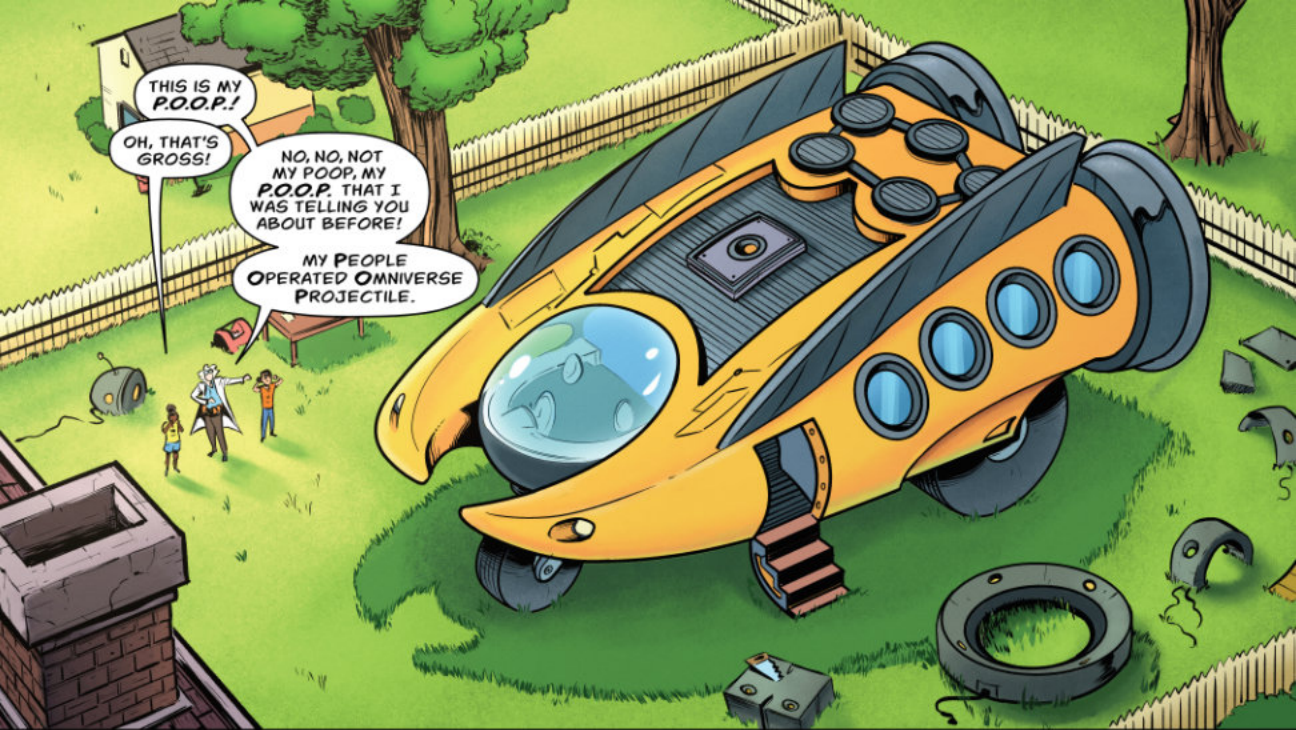
...HMMMMM...

I KNOW, I'LL SHOW YOU!

SHOW US WHAT?



THE IMMUNE SYSTEM!



THIS IS MY P.O.O.P.!

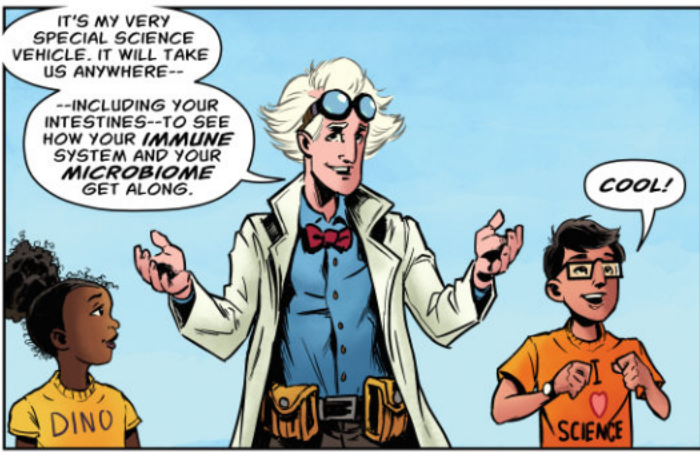
OH, THAT'S GROSS!

NO, NO, NOT MY P.O.O.P. MY P.O.O.P. THAT I WAS TELLING YOU ABOUT BEFORE!

MY PEOPLE OPERATED OMNIVERSE PROJECTILE.



UHH WHAT?



IT'S MY VERY SPECIAL SCIENCE VEHICLE. IT WILL TAKE US ANYWHERE--

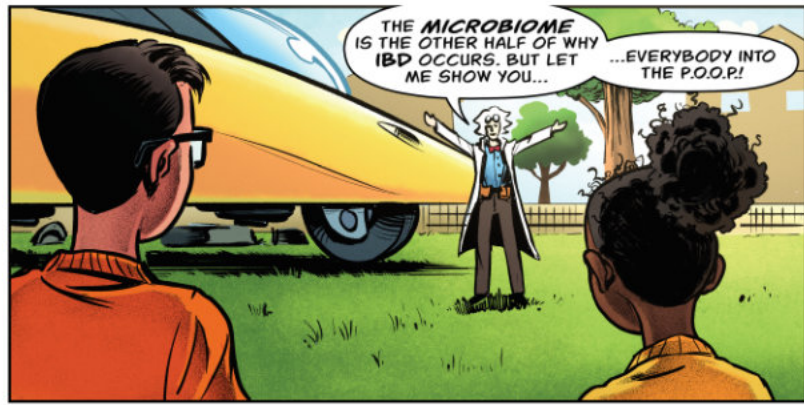
--INCLUDING YOUR INTESTINES--TO SEE HOW YOUR IMMUNE SYSTEM AND YOUR MICROBIOME GET ALONG.

COOL!



MICROBIOME...

...PROFESSOR NIMBAL, ARE YOU MAKING UP WORDS?



THE MICROBIOME IS THE OTHER HALF OF WHY IBD OCCURS. BUT LET ME SHOW YOU...

...EVERYBODY INTO THE P.O.O.P.!



UGH, WHY DID HE NAME IT THAT?

HEH.



LET'S SEE, WHERE SHOULD WE TRAVEL TO?

HOW ABOUT TO SPACE!

OR TO MEET THE DINOSAURS?

HOW ABOUT...

...INSIDE AVI'S LARGE INTESTINES TWO WEEKS AGO?



UHH...  
...IF YOU SAY SO.



AVI, IF YOU WOULD, PRESS THIS BUTTON AND SPEAK YOUR DESTINATION.



TAKE US INSIDE MY GUT TWO WEEKS AGO!

**FVWOOSH!**

WOW!





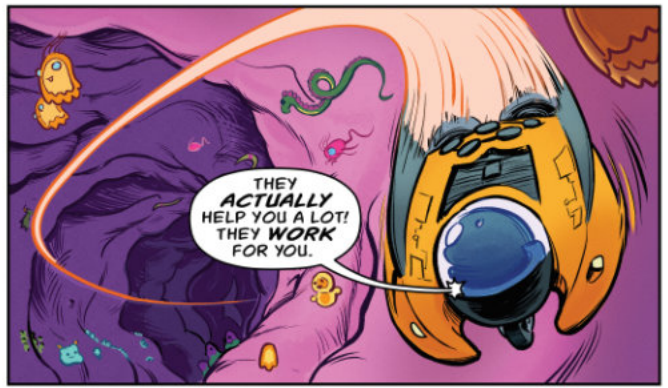
SEE ALL THOSE BACTERIA?



TOGETHER  
THOSE BACTERIA  
MAKE UP YOUR  
MICROBIOME!



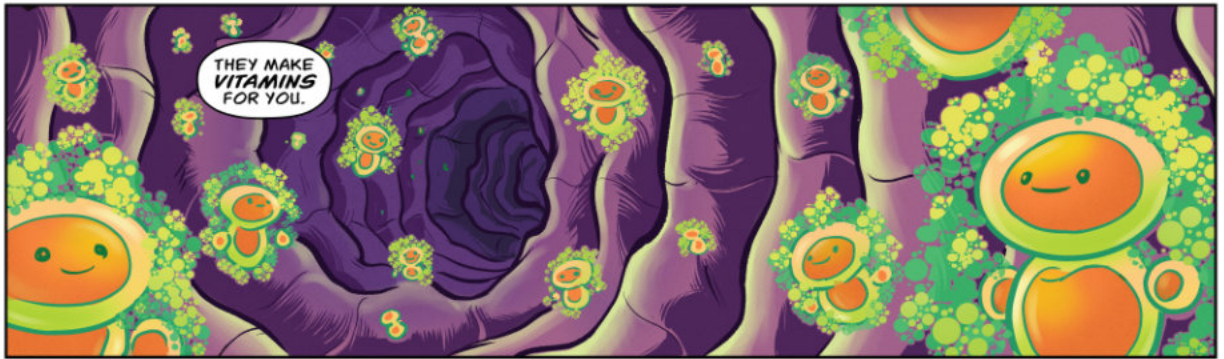
THERE ARE TRILLIONS UPON TRILLIONS OF THEM INSIDE YOUR GUT, ALL THE TIME!



THEY ACTUALLY HELP YOU A LOT! THEY WORK FOR YOU.



THEY HELP BREAK DOWN FOOD.



THEY MAKE VITAMINS FOR YOU.



AND, THEY PROTECT YOU FROM INFECTIONS.



WE HAVE SO MANY BACTERIA LIVING IN OUR INTESTINES THAT EVERY TIME WE POOP, ABOUT 1/3 OF THE POOP IS BACTERIA!

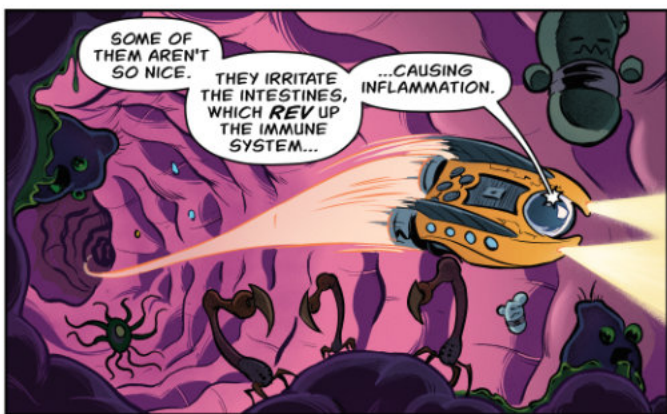


GROSS!

BUT HOW DO THEY AFFECT MY IBD?

GREAT QUESTION!

EACH OF THOSE BACTERIA HAS ITS OWN PERSONALITY.



SOME OF THEM AREN'T SO NICE.

THEY IRRITATE THE INTESTINES, WHICH REV UP THE IMMUNE SYSTEM...

...CAUSING INFLAMMATION.



USUALLY THERE ARE SO FEW OF THESE MEANER BACTERIA THAT THE IMMUNE SYSTEM DOESN'T REACT TO THEM.

BUT WHEN THERE ARE TOO MANY MEANIES...

...THE IMMUNE SYSTEM ATTACKS!



HEY? WHO ARE YOU?

THAT LOOKS LIKE FAECALIBACTERIUM PRAUSNITZII...

...OR JUST PRASNI FOR SHORT...

HE IS ONE OF YOUR MANY GOOD BACTERIA.

HE IS A NICE FELLOW!



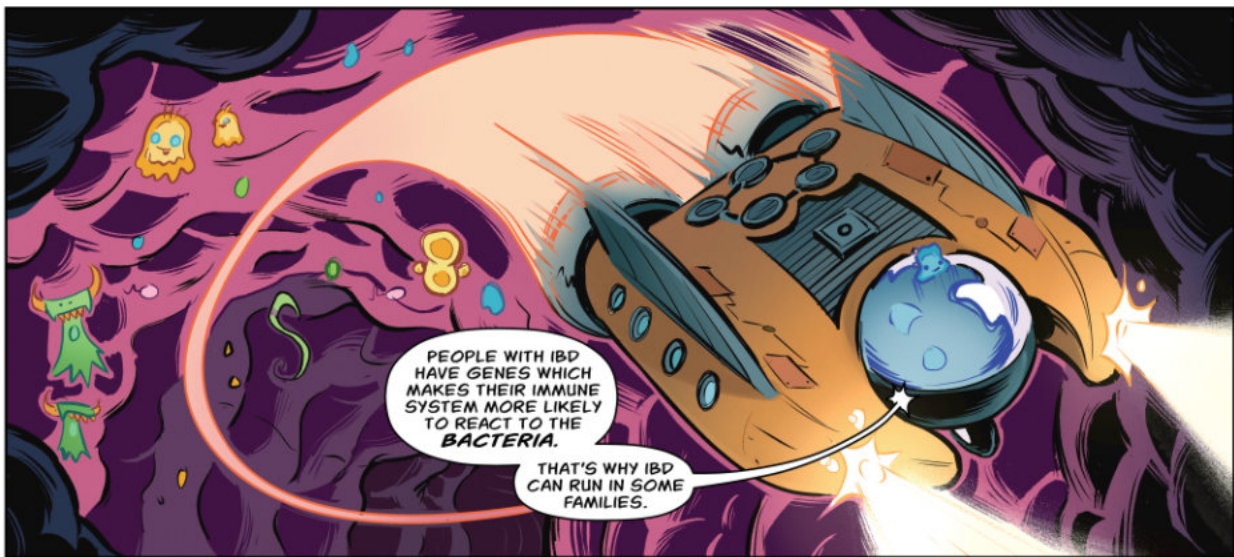
HE WITH HIS FRIENDS KEEP YOUR INTESTINES HEALTHY.



SO MY IMMUNE SYSTEM IS ATTACKING MY INTESTINES BECAUSE MY MICROBIOME HAS TOO MANY OF THESE BAD BACTERIA?

EXACTLY!

BUT BAD BACTERIA ARE ONLY PART OF THE PROBLEM.



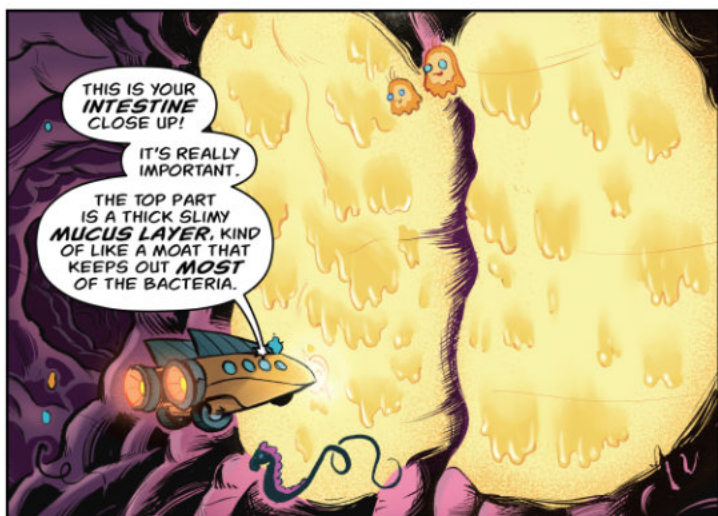
PEOPLE WITH IBD HAVE GENES WHICH MAKES THEIR IMMUNE SYSTEM MORE LIKELY TO REACT TO THE BACTERIA.

THAT'S WHY IBD CAN RUN IN SOME FAMILIES.



WHAT'S THAT OVER THERE?

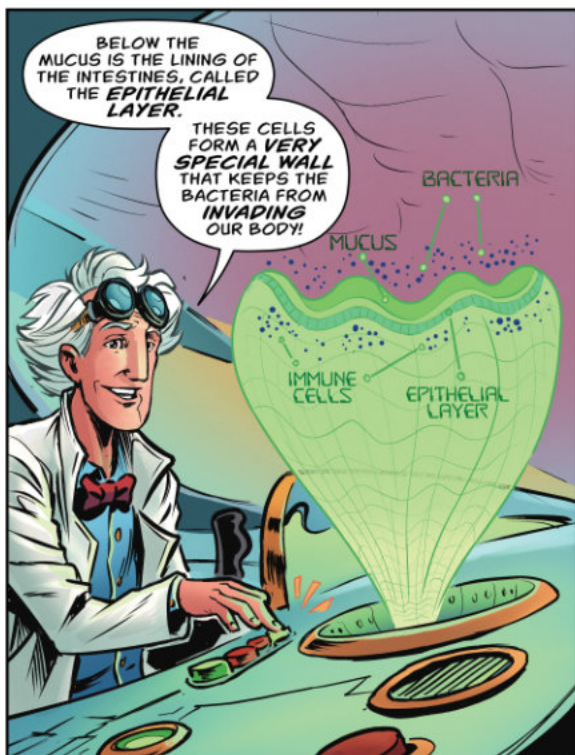
LET'S GO AND TAKE A LOOK!



THIS IS YOUR **INTESTINE** CLOSE UP!

IT'S REALLY IMPORTANT.

THE TOP PART IS A THICK SLIMY **MUCUS LAYER**, KIND OF LIKE A MOAT THAT KEEPS OUT **MOST** OF THE BACTERIA.



BELOW THE MUCUS IS THE LINING OF THE INTESTINES, CALLED THE **EPITHELIAL LAYER**.

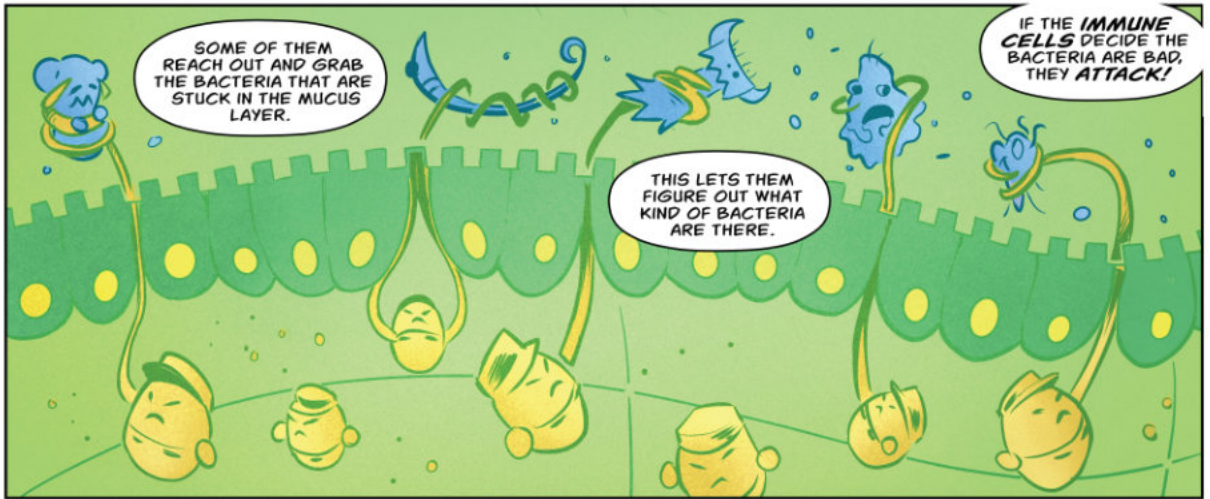
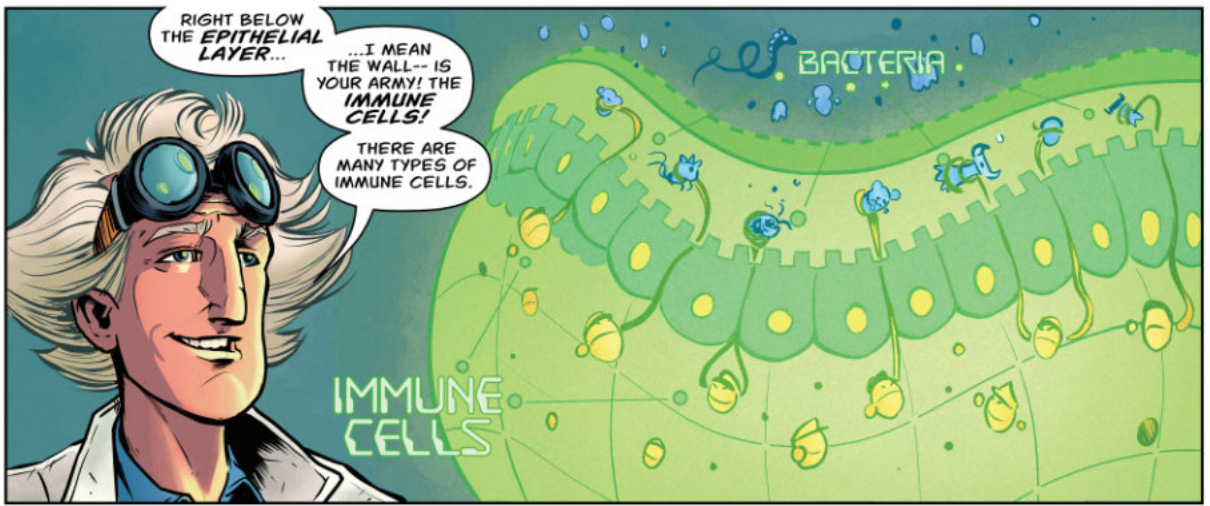
THESE CELLS FORM A **VERY SPECIAL WALL** THAT KEEPS THE BACTERIA FROM **INVADING** OUR BODY!



AND IT CAN **ALSO** MAKE PROTEINS THAT KILL BACTERIA!

KIND OF LIKE A CANNON SHOOTING OUT OF A **FORTRESS**?

**EXACTLY!**





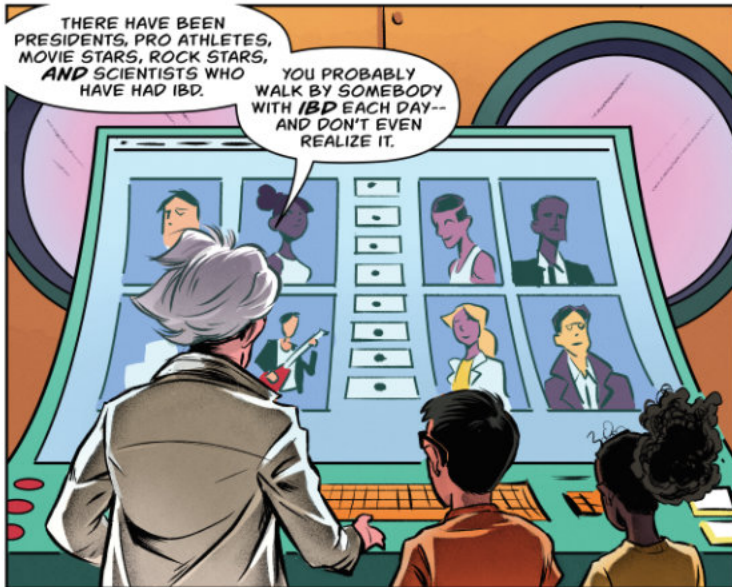
SOMETHING THAT HAS BEEN INTRIGUING SCIENTISTS IS THAT **IBD** IS ON THE RISE...  
...MEANING IT IS MUCH MORE COMMON TODAY THAN EVER BEFORE.

REALLY?



THERE ARE **MILLIONS** OF PEOPLE AROUND THE WORLD WITH **IBD**.

WOW! THAT'S A LOT OF US!



THERE HAVE BEEN PRESIDENTS, PRO ATHLETES, MOVIE STARS, ROCK STARS, AND SCIENTISTS WHO HAVE HAD **IBD**.

YOU PROBABLY WALK BY SOMEBODY WITH **IBD** EACH DAY-- AND DON'T EVEN REALIZE IT.



WHY HAS **IBD** BECOME SO MUCH MORE COMMON?



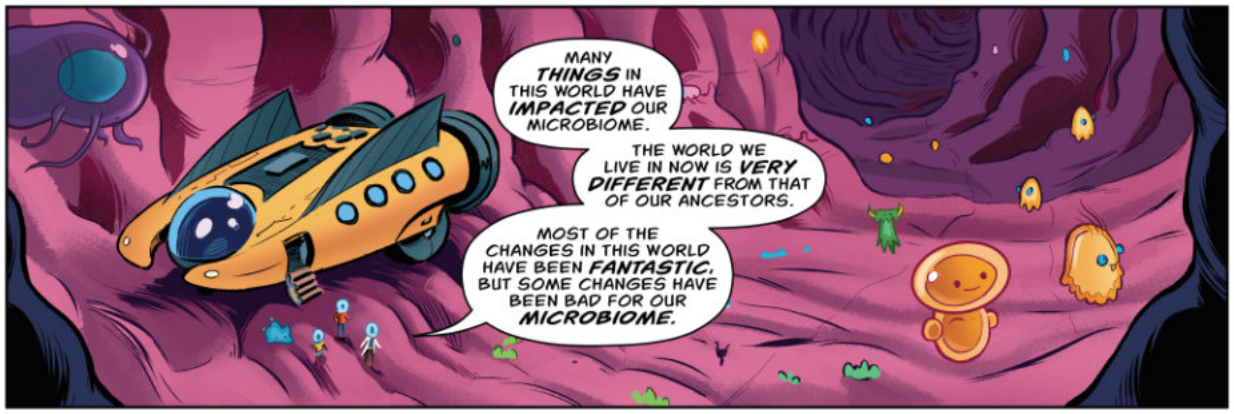
HAVE OUR MICROBIOMES CHANGED TO MAKE OUR IMMUNE SYSTEM ATTACK IT?



**GREAT QUESTIONS!**

OUR MICROBIOMES HAVE CHANGED AND THAT IS ONE REASON SCIENTISTS BELIEVE **IBD** IS MORE COMMON TODAY.

TO BETTER UNDERSTAND WHY, WE NEED TO DO SOMETHING A BIT **RISKY**. WE NEED TO GO ON A **FIELD TRIP!**



MANY THINGS IN THIS WORLD HAVE IMPACTED OUR MICROBIOME.

THE WORLD WE LIVE IN NOW IS VERY DIFFERENT FROM THAT OF OUR ANCESTORS.

MOST OF THE CHANGES IN THIS WORLD HAVE BEEN FANTASTIC, BUT SOME CHANGES HAVE BEEN BAD FOR OUR MICROBIOME.



FOR EXAMPLE, ANTIBIOTICS, WHICH HELP FIGHT INFECTIONS AND SAVES LIVES, CAN ALSO HURT THE MICROBIOME.

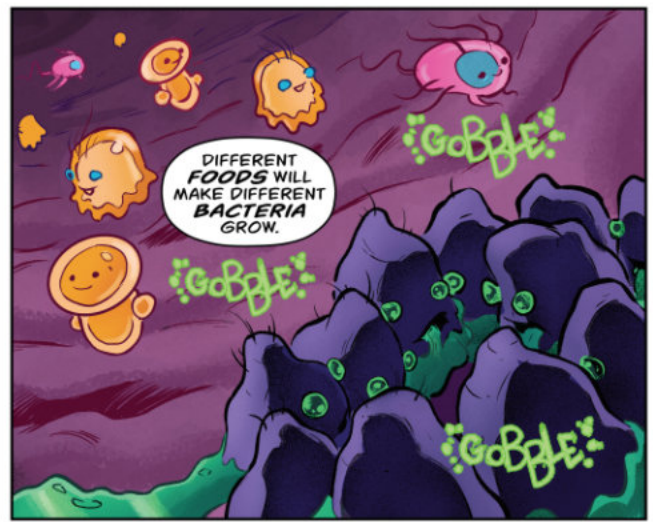
ANOTHER BIG CHANGE HAS BEEN THE TYPES OF FOODS WE EAT.



WHAT DO YOU MEAN?



WATCH.

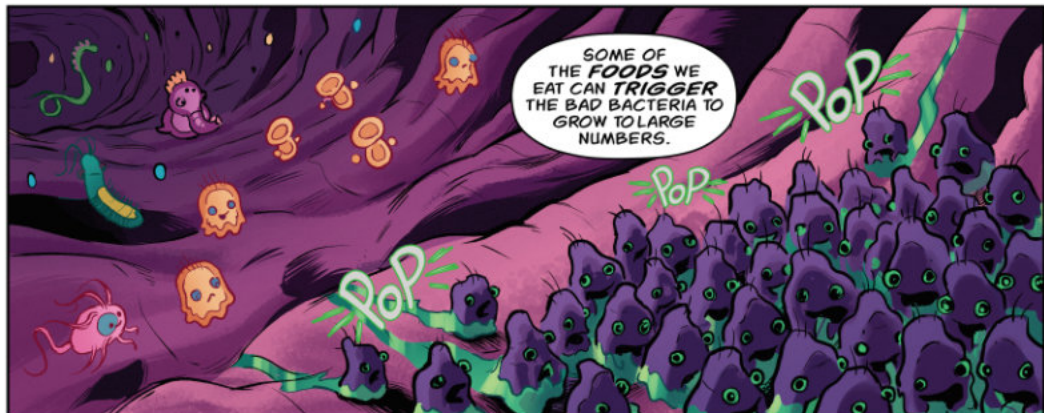


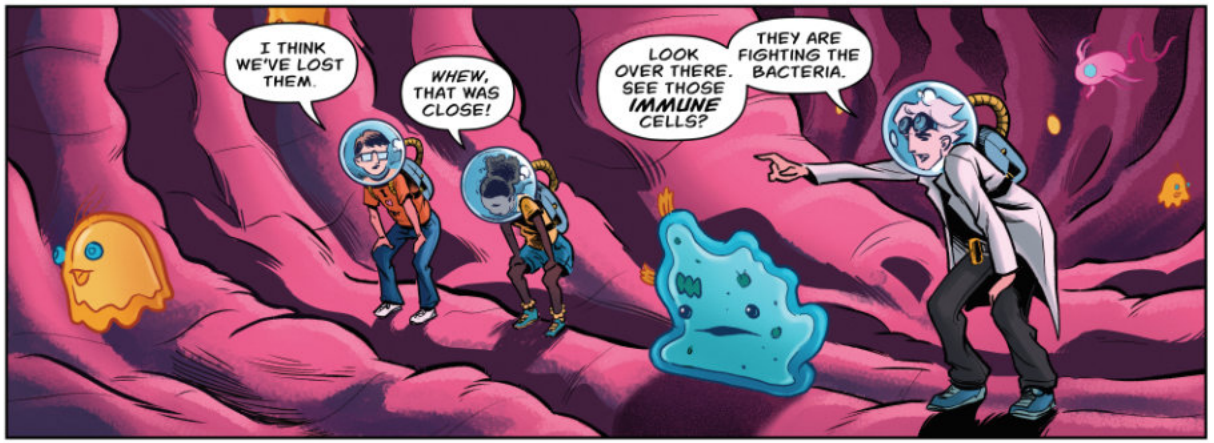
DIFFERENT FOODS WILL MAKE DIFFERENT BACTERIA GROW.

Gobble!

Gobble!

Gobble!





I THINK WE'VE LOST THEM.

WHEW, THAT WAS CLOSE!

LOOK OVER THERE. SEE THOSE IMMUNE CELLS?

THEY ARE FIGHTING THE BACTERIA.



THE PROBLEM IN IBD IS THAT WHEN THE IMMUNE CELLS ARE ATTACKING THE BAD BACTERIA, THEY ALSO DAMAGE THE BODY'S INTESTINAL CELLS--

--THE WALL-- AS WELL.



THIS ATTACK CALLED INFLAMMATION...



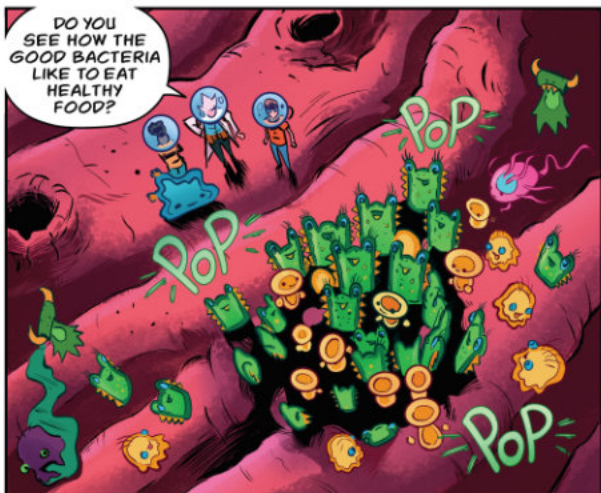
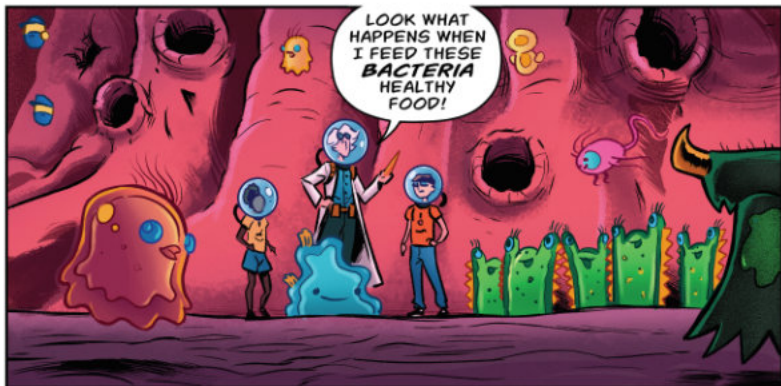
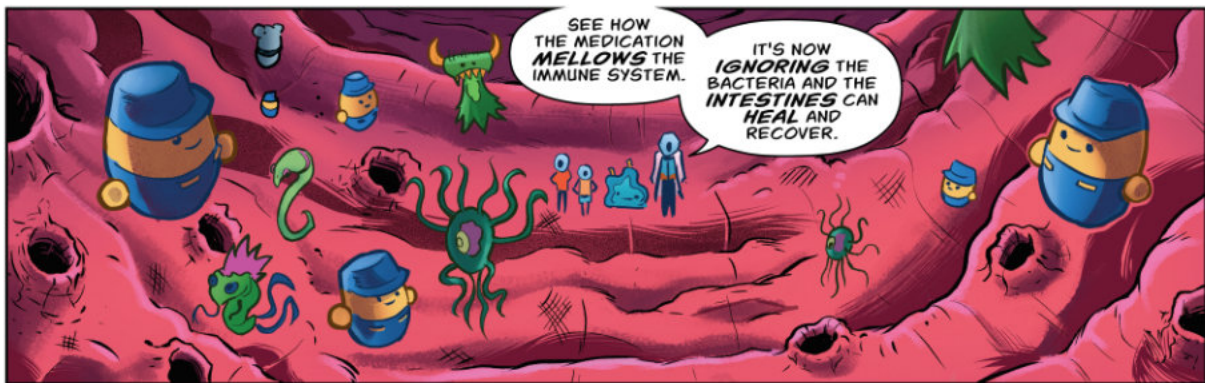
...CAUSES IRRITATION AND ULCERS IN THE INTESTINES WHICH CAN CAUSE PAIN, DIARRHEA...



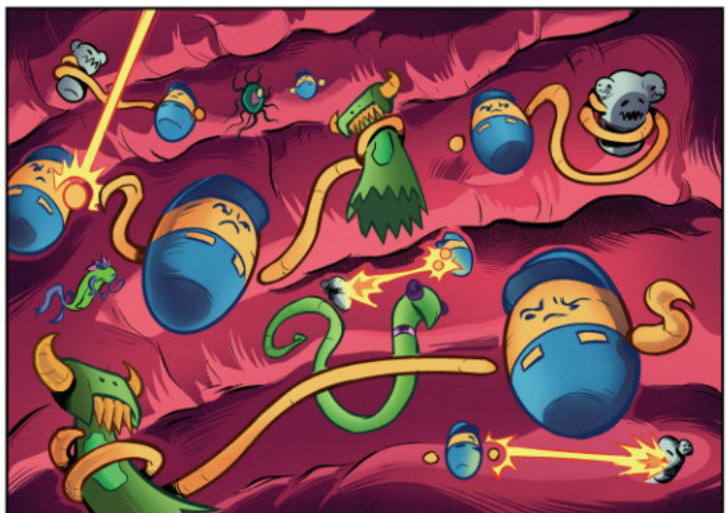
...AND MANY OTHER SYMPTOMS.



IT'S GETTING OUT OF CONTROL! HOW DO WE STOP IT?









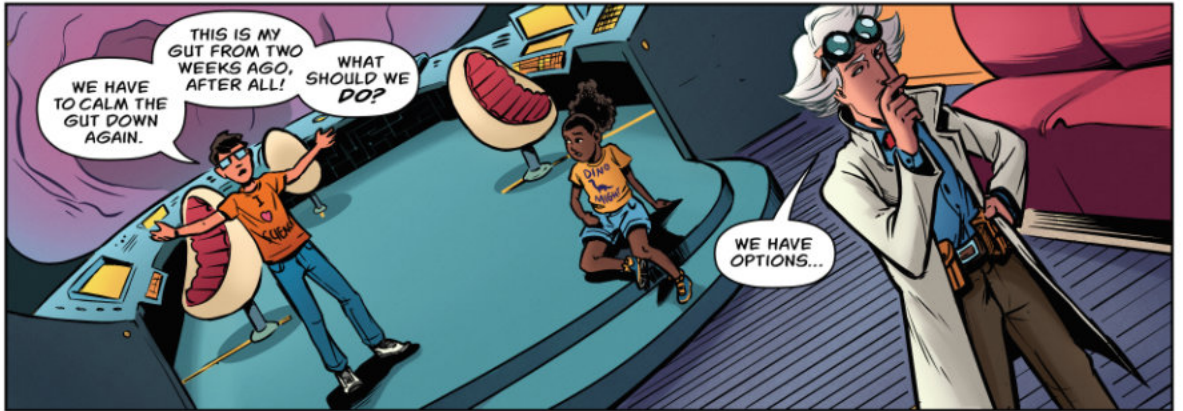
GET IN!



BAP!

BAP!

BAP!



WE HAVE TO CALM THE GUT DOWN AGAIN.

THIS IS MY GUT FROM TWO WEEKS AGO, AFTER ALL!

WHAT SHOULD WE DO?

WE HAVE OPTIONS...



WE CAN USE MEDICATION OR NUTRITIONAL THERAPY!



QUICK!

LET'S JUST USE BOTH!

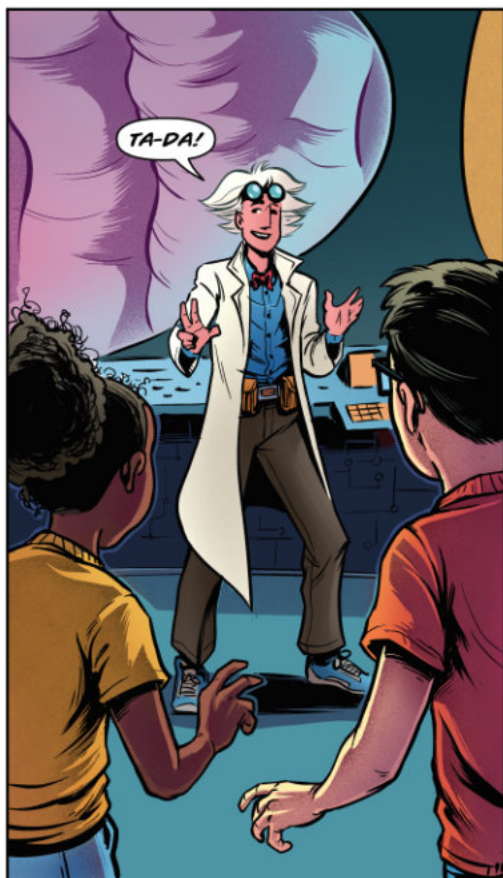


GOOD CHOICE!

click

click





TA-DA!



THAT WAS AWESOME. BUT HOW DO WE MAKE SURE THEY DON'T GET ANGRY AGAIN?



MEDICATIONS USUALLY WORK VERY WELL.

DIETARY THERAPY ALSO WORKS WELL.

SOME PEOPLE USE MEDICATIONS AND OTHERS USE DIET THERAPY AND MANY PEOPLE USE BOTH.



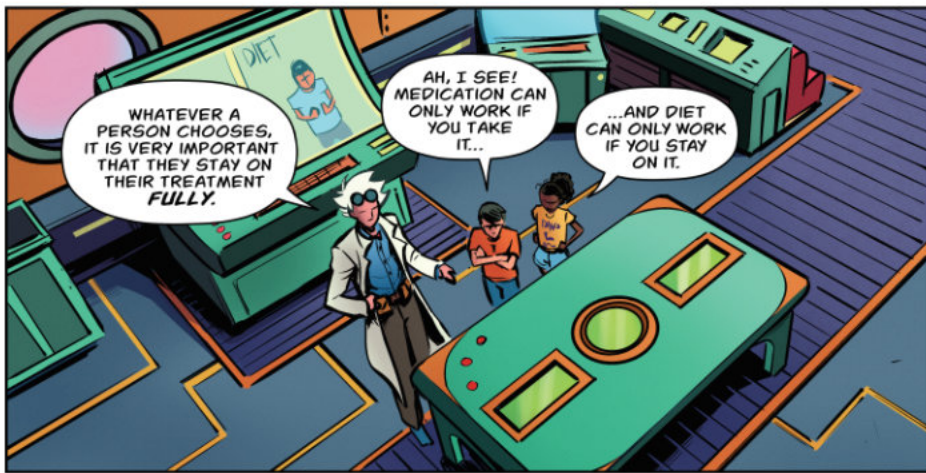
THE CHOICE DEPENDS ON THE INDIVIDUAL, WHAT THEIR BODY NEEDS AND WHAT THEY WANT.

INTERESTING! COULD YOU EXPLAIN MORE ABOUT THE CHOICES?



EACH CHOICE HAS ITS OWN CONSIDERATIONS.

MEDICATIONS CAN HAVE SIDE EFFECTS, WHILE A STRICT DIET CAN BE HARDER FOR SOME PEOPLE TO FOLLOW.



WHATEVER A PERSON CHOOSES, IT IS VERY IMPORTANT THAT THEY STAY ON THEIR TREATMENT FULLY.

AH, I SEE! MEDICATION CAN ONLY WORK IF YOU TAKE IT...

...AND DIET CAN ONLY WORK IF YOU STAY ON IT.

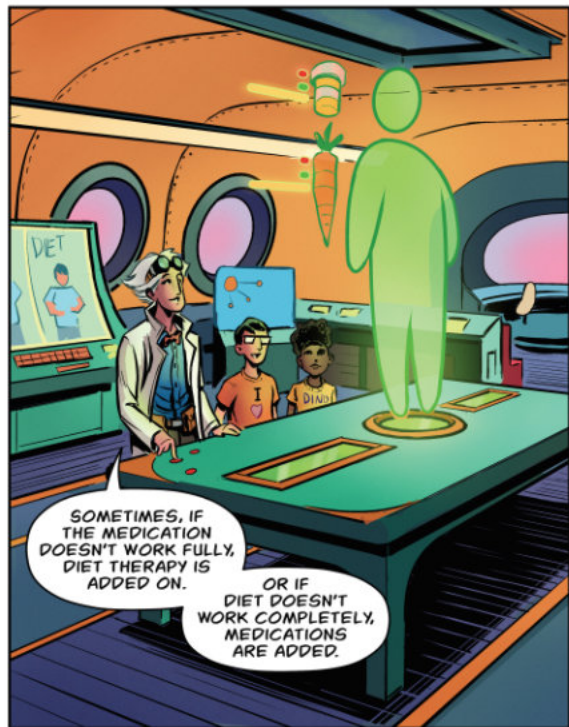


EXACTLY!



IT'S IMPORTANT TO REALIZE THAT **ALTHOUGH** BOTH MEDICATIONS AND DIET ARE REALLY GOOD TREATMENTS FOR IBD...

...NOT EVERYONE **RESPONDS** EQUALLY TO EACH TREATMENT.



SOMETIMES, IF THE MEDICATION DOESN'T WORK FULLY, DIET THERAPY IS ADDED ON.

OR IF DIET DOESN'T WORK COMPLETELY, MEDICATIONS ARE ADDED.



THE GOAL OF ANY TREATMENT IS TO GET A PERSON **FEELING GREAT** AND INTO FULL REMISSION--

--WHICH MEANS THAT **ALL** THEIR SYMPTOMS ARE **GONE**.



ANOTHER IMPORTANT PART IS TO MAKE SURE **ALL** THE INFLAMMATION IS GONE TOO!

GOT IT!



IT TOTALLY MAKES SENSE PROFESSOR. NOW I KNOW WHAT I NEED TO DO!

WHAT?



I AM GOING TO WORK WITH MY PARENTS AND MY HEALTHCARE TEAM TO MAKE SURE I GET MY IBD INTO **REMISSION!** AND THEN KEEP IT THERE!

**YEAH!**

TO LEARN MORE ABOUT YOUR **IBD**, TALK WITH YOUR GASTROENTEROLOGIST --**GUT DOCTOR**--YOUR VERY OWN **PROFESSOR NIMBAL!**

WANT TO  
OUTSMART YOUR  
DOCTOR?

HERE'S  
HOW!

HAVE YOU EVER HEARD YOUR DOCTOR TALK TO HIS OR HER BUDDIES? CAN YOU UNDERSTAND ANYTHING THEY'RE SAYING? BESIDES "YES", "NO" AND "WHERE'S THE BATHROOM?" LET'S FACE IT, DOCTORS CAN USE VERY CONFUSING WORDS AND EVEN STRANGER PHRASES. WOULD YOU LIKE TO HAVE A SECRET CODEBOOK THAT HELPS YOU DE-CODE ALL THOSE CONFUSING WORDS? IN FACT, IN ADDITION TO FIGURING OUT WHAT THE HECK YOUR DOCTOR IS SAYING, THIS CODE BOOK INCLUDES COOL QUESTIONS YOU CAN ASK YOUR DOC THAT'LL SHOW YOU REALLY DO KNOW WHAT'S GOING ON! SO, LET'S GET STARTED!

# DECODING IBD WITH: PROFESSOR NIMBAL

## NUMBER 1: INFLAMMATORY BOWEL DISEASE IBD.

WHAT IS IT? WELL, THERE ARE ACTUALLY SEVERAL DISEASES CALLED **INFLAMMATORY BOWEL DISEASE**, OFTEN SHORTENED TO **IBD**, JUST TO SAVE TIME. THE TWO MAIN DISEASES CALLED **IBD** ARE **CROHN'S DISEASE**, NAMED AFTER ONE OF THE GUYS WHO FIRST DESCRIBED IT, **BURRILL B. CROHN** AND THE OTHER MAIN **IBD** IS **ULCERATIVE COLITIS**, NOT NAMED AFTER DR. **ULCERATIVE** OR **DR. COLITIS**.

HERE'S WHAT THE TWO DISEASES HAVE IN COMMON. IN BOTH OF THEM, **THE IMMUNE SYSTEM**, THE SYSTEM IN OUR BODY THAT PROTECTS US FROM **INFECTIONS** LIKE VIRUSES (THE COMMON COLD OR FLU) GETS ALL REVVED. THIS REVVED UP IMMUNE SYSTEM IS CAUSING DAMAGE TO WHAT A LOT OF PEOPLE CALL **THE GUT**...OR WHAT DOCTORS GENERALLY CALL **THE INTESTINES**. THE IMMUNE SYSTEM'S ATTACK RESULTS IN **INFLAMMATION** (SEE HOW DOCS DEFINE INFLAMMATION BELOW!). THIS CAN CAUSE **PAIN**, **DIARRHEA**, **WEIGHT LOSS** AND OTHER **SYMPTOMS** AS WELL.

BUT **CROHN'S DISEASE** AND **ULCERATIVE COLITIS** ARE DIFFERENT, TOO, KIND OF LIKE TWINS WHO LOOK ALIKE BUT DON'T ALWAYS ACT ALIKE. THEY CAN HAVE DIFFERENT PARTS OF THE GUT BEING ATTACKED, DIFFERENT SYMPTOMS AND LOOK DIFFERENT TO YOUR DOCTOR. TO UNDERSTAND WHY **RATED**!

NOW, WANT TO ASK SOMETHING THAT WILL **REALLY IMPRESS** YOUR DOCTOR? **TRY THIS!** "DOC, I AM VERY UPSET ABOUT SOMETHING AND I THINK WE OUGHT TO DISCUSS IT. I HAPPENED TO DISCOVER, JUST BY CHANCE, THAT IN THE UNITED STATES ALONE, THERE ARE **MILLIONS** OF PEOPLE DIAGNOSED WITH **IBD**. THAT'S A LOT OF **IBD**, WOULDN'T YOU SAY?" AND, EVEN WORSE, **MORE AND MORE** PEOPLE ARE GETTING IT. MAYBE IT'S TIME THAT YOU AND I OUGHT TO START FINDING OUT WHY AND THEN DOING SOMETHING ABOUT IT. IF WE WORK TOGETHER, I'M PRETTY SURE WE OUGHT TO BE ABLE TO CHANGE THINGS. **RIGHT?!**"

## NUMBER 2: CROHN'S DISEASE

ONE OF THE MAIN TYPES OF **INFLAMMATORY BOWEL DISEASE**, IN **CROHN'S**, UNLIKE **ULCERATIVE COLITIS**, THE **INFLAMMATION** CAN BE FOUND IN ANY PART OF THE **GASTROINTESTINAL TRACT**, THAT IS, IN BOTH THE **SMALL** AND **LARGE INTESTINES**. HOW DO PEOPLE USUALLY FIND OUT THAT THEY HAVE **CROHN'S DISEASE**? I BET YOU KNOW ALREADY! **STOMACH PAIN**, **DIARRHEA**, **WEIGHT LOSS**, ARE A FEW OF THE **SYMPTOMS** PEOPLE CAN GET. REMEMBER THOUGH THAT EVERYONE IS UNIQUE! **SYMPTOMS** AND HOW SEVERE THE **SYMPTOMS** ARE DEPEND ON EACH PERSON AND HOW **CROHN'S** IS BEHAVING IN YOU.

HERE'S AN INTERESTING QUESTION: DOES **CROHN'S DISEASE** ONLY ATTACK ORDINARY EVERYDAY PEOPLE? **NO WAY!** UNLESS YOU THINK A U.S. PRESIDENT IS ORDINARY. LIKE **PRESIDENT DWIGHT DAVID EISENHOWER**. YEP. THIS MAN WAS NOT ONLY A **U.S. PRESIDENT** AND A **FIVE-STAR GENERAL**, HE ALSO HAD **CROHN'S DISEASE**. JUST HAD TO MENTION THAT IN CASE YOU THOUGHT **CROHN'S** WAS GOING TO KEEP YOU FROM BECOMING PRESIDENT. SO, **NO EXCUSES!**

## NUMBER 3: ULCERATIVE COLITIS. UC

NOW WE COME TO **ULCERATIVE COLITIS**, OR **UC**, THE OTHER MAIN TYPE OF **INFLAMMATORY BOWEL DISEASE**. SEE THE PICTURE ON THE NEXT PAGE OF THE **INNER BODY**. SEE THAT CURVY, CURLY TUBE? THAT'S WHAT'S KNOWN AS THE **LARGE INTESTINE** OR, IF YOU ARE FANCY, **THE COLON**. THAT'S WHERE **THE IMMUNE SYSTEM** ATTACKS IN **ULCERATIVE COLITIS**. NOW, **UC**

ATTACKS DIFFERENTLY DEPENDING ON WHOM IT'S ATTACKING. FOR SOME PEOPLE, **UC** CAUSES **STREAMING**, **ONGOING INFLAMMATION** THAT STARTS AT THE **ANUS**, (I'M PRETTY SURE YOU KNOW WHERE THAT IS, RIGHT? IF NOT TAKE A LOOK AT THE HANDY DIAGRAM ON THE NEXT PAGE), CONTINUING THROUGH THE ENTIRE **COLON**. FOR OTHER PATIENTS, THE **INFLAMMATION** STOPS SOONER ONLY AFFECTING PART OF THE **COLON**. **INFLAMMATION** FOR SOME CAN START AND STOP AT THE **RECTUM**. THAT'S WHEN IT'S CALLED **PROCTITIS**. BUT IF THE **INFLAMMATION** TRAVELS, SPREADING THROUGH THE ENTIRE **COLON**, THEN IT'S CALLED **PANCOLITIS**. THE **SYMPTOMS** OF **UC** INCLUDE BLOOD IN THE **STOOL**, **DIARRHEA**, **CRAMPING** AND **GET THIS, TENESMUS!** A NEW WORD THAT YOU CAN IMPRESS YOUR **DOC** WITH! (IF YOU DON'T KNOW WHAT **TENESMUS** MEANS DON'T WORRY... JUST LOOK IT UP IN THE FOLLOWING PAGES).

SO...DO YOU WANT TO **AMAZE** YOUR DOCTOR AND, AT THE SAME TIME, MAKE HIM/HER FEEL REALLY GOOD? **JUST SAY THIS:**

"HEY, DOCTOR, DID YOU KNOW **PRESIDENT KENNEDY** HAD **ULCERATIVE COLITIS**? I WOULD HAVE RECOMMENDED YOU AS HIS DOCTOR! TOO BAD YOU WEREN'T THERE TO TREAT HIM!"

# YOUR GUT!



NUMBER 4: **INDETERMINATE COLITIS** IC.



THE DIAGNOSING OF IBD IS KIND OF LIKE WORKING ON A **JIGSAW PUZZLE**. LET'S PRETEND YOU'RE A DOCTOR AND A NEW PATIENT COMES IN AND YOU WANT TO HELP THIS PATIENT IN THE BEST WAY POSSIBLE. BUT WITH THIS PATIENT, ALL THE **CROHN'S** PUZZLE PIECES DON'T TOTALLY FIT, NOR DO ALL THE **UC** PIECES. YOU SIT DOWN AND THINK, "**IS THIS CROHN'S DISEASE? IS THIS ULCERATIVE COLITIS? I'M NOT ABSOLUTELY SURE.**" BECAUSE, LET'S FACE IT, IT'S NOT ALWAYS **100% CLEAR** EXACTLY WHICH IT IS. SO, WHAT'S A GOOD DOCTOR TO DO? USE ANOTHER NAME TO DESCRIBE THIS!

AND, THANKS TO **INGENUOUS DOCTORS** WE HAVE THIS DIAGNOSIS: "**INDETERMINATE COLITIS!**" SO, IF THAT WAS YOUR DIAGNOSIS, SAY "**YEA! YEA!**" GOOD TREATMENT IS ON THE WAY!

THEN SAY TO YOUR DOCTOR: "**DOC, YOU ARE ONE GREAT DETECTIVE! I KNOW YOU HAVE NOT DETERMINED WHETHER I HAVE CROHN'S OR UC YET BUT THAT DOESN'T MATTER BECAUSE YOU ARE TAKING SUCH GOOD CARE OF ME! THANK YOU!**"

NUMBER 5: **ABCESS.**



**WHAT IS IT?** A SQUISHY, **SWOLLEN** AREA, CONTAINING A LOT OF **PUS** WITHIN THE BODY.

"**DOCTOR, DO YOU KNOW THAT ABSCESS I HAVE? I JUST FOUND OUT THAT IT'S FILLED WITH PUS WHICH IS MADE UP OF DEAD IMMUNE CELLS. YUCK! I JUST WANT TO SAY, THANK GOODNESS FOR ANTIBIOTICS! I HATE TO THINK WHAT IT WAS LIKE BEFORE WE HAD THEM!**"

NUMBER 6: **ANEMIA.**



**WHAT IS IT?** RED BLOOD CELLS TRANSPORT **OXYGEN** THROUGHOUT THE BODY. BUT SOMETIMES, THERE JUST AREN'T ENOUGH. THAT IS WHAT **ANEMIA** IS. YOU'RE TIRED, DRAGGING AROUND WITH **NO ENERGY** AND YOU FEEL **REALLY YUCKY.**

**WHY DOES IT OCCUR?**

IT HAPPENS IF YOU ARE HAVING A LOT OF **BLEEDING**, OR HAVE LOTS OF **INFLAMMATION**, OR YOU'RE JUST NOT EATING ENOUGH OF THE RIGHT **FOODS** WHICH HAVE **IMPORTANT VITAMINS** AND **MINERALS**, LIKE FOODS WITH **IRON.**

"**HEY, DOC, YOU KNOW HOW BAD I FEEL? I COULDN'T EVEN GET ENOUGH ENERGY TO WATCH TV LAST NIGHT. THAT NEVER HAPPENS TO ME! HERE'S WHAT I'M GUESSING, AND YOU CAN TELL ME IF I'M RIGHT. I BET MY LAB TESTS SHOW ANEMIA? RIGHT? HUH?! I KNEW IT!**"

YOUR DOC WILL BE VERY, VERY IMPRESSED! WITH GOOD REASON!

NUMBER 7: **ARTHRALGIA**



A VERY FANCY WORD THAT MEANS PAIN IN THE JOINTS. **JOINTS?** YOU KNOW, YOUR **KNEES**, YOUR **ELBOWS**, **FINGERS** AND **TOES**. YOU'RE RUNNING TO THIRD BASE AND YOUR **KNEES** ARE SCREAMING? YUP, **ARTHRALGIA.**

NUMBER 8: **ARTHRITIS**



**INFLAMMATION** AND **STIFFNESS** IN THE JOINTS. **WHY? GOOD QUESTION! ASK YOUR DOCTOR:**

"**DOC, HOW CAN MY IBD HAVE ANYTHING TO DO WITH MY REALLY **ACHY JOINTS?** MY JOINTS ARE SO FAR AWAY FROM MY **INTESTINES** YOU'D THINK THEY WOULDN'T EVEN **KNOW** EACH OTHER."**

NUMBER 9: **DEHYDRATION**

THINK OF THE **ARAL SEA!** LOOK IT UP. ONCE A WONDERFUL WATER WAY, FILLED WITH, OF COURSE, **WATER**. NOW IT'S A DESERT. SAME WITH US. WE NEED **WATER** FOR OUR BODIES AND SUDDENLY, IF WE DON'T HAVE **ENOUGH**, IT'S NOT GREAT.

"**DOC, MY LIPS ARE REALLY DRY, I THINK I'M **DEHYDRATED.** HOW COME?**"



NUMBER 10:  
**DIARRHEA**

LET'S FACE IT, NEVER A FUN THING TO HAVE! IT'S A CONDITION OF **POOPING AND POOPING AND POOPING** EVEN MORE, AND WHERE THE POOP BECOMES MORE LIQUID.

NUMBER 11:  
**FISTULA**

A CONNECTION BETWEEN TWO AREAS, WHICH SHOULD NOT BE THERE. IT IS LIKE A **VERY SMALL TUNNEL FROM ONE AREA TO ANOTHER**, LIKE THE GUT TO THE ANUS. THIS CAN OCCUR IN **CROHN'S DISEASE**.

SO, NOW A LESSON IN ENGLISH! WHAT DO YOU CALL TWO WORDS THAT SOUND THE SAME BUT HAVE TWO ENTIRELY DIFFERENT MEANINGS? ANYONE? RIGHT! **HOMONYMS!** AND THAT'S EXACTLY WHAT YOU HAVE IN THE WORDS "FLAIR" AND "FLARE." IT'S GREAT TO HAVE **FLAIR!** IT MEANS YOU'RE REALLY GOOD AT SOMETHING. BUT A **FLARE?** NOT SO GREAT. BECAUSE A **FLARE** IS WHEN YOUR SYMPTOMS RELATED TO YOUR IBD BEGIN ANEW OR SUDDENLY BECOME MUCH WORSE.

"DOC," YOU SAY TO YOUR DOCTOR, "I WAS FEELING GREAT BUT NOW MY **DIARRHEA** AND **STOMACHACHES** ARE STARTING UP AGAIN. I'M FEELING REALLY, REALLY LOUSY. DO YOU THINK THIS IS A **FLARE** OF MY IBD?"

NUMBER 12:  
**FLARE**

NUMBER 13:  
**GENES**

BET YOU KNOW WHAT THEY ARE! ALSO CALLED OUR **DNA**, THEY DETERMINE WHO WE ARE AND WHAT WE **LOOK LIKE!** OUR **HEIGHT**, OUR **EYE COLOR**, HOW SHORT OUR **FINGERS** ARE, HOW SHORT OUR **NOSE** IS AND, WELL, LET'S FACE IT, WHETHER WE ARE LIKELY TO DEVELOP **IBD**. WE GET THEM FROM OUR **PARENTS**, WHO GOT THEM FROM THEIR PARENTS, WHO GOT THEM FROM THEIR PARENTS, ALL THE WAY BACK TO THE **BEGINNING OF TIME**. THEY HELP MAKE US WHO WE ARE.

"DOC, EVEN THOUGH MY **GENES** ARE PART OF THE REASON WHY I DEVELOPED **IBD**, I REALLY LOVE WHO I AM, ESPECIALLY THE PART OF ME THAT SAY, IF I HAVE A **PROBLEM**, I'M GOING TO SOLVE IT **CONSTRUCTIVELY!** DON'T KNOW IF THAT'S **GENES** OR JUST ME, BUT I LOVE IT NO MATTER WHAT!"

NUMBER 14:  
**IMMUNE SYSTEM & IMMUNE RESPONSE**

THE **IMMUNE SYSTEM** IS OUR BODY'S MECHANISM FOR SELF-PROTECTION. THE TRIGGERING OF THE **IMMUNE SYSTEM** IS CALLED THE **IMMUNE RESPONSE**. THIS IMMUNE ATTACK IS ON FOREIGN CELLS/SUBSTANCES THAT ARE CONSIDERED THREATS TO THE BODY, INCLUDING THE "**BAD BACTERIA**" IN **IBD**.

"DOC, DO YOU KNOW WHAT I CONSIDER MY **IMMUNE SYSTEM?** MY OWN PERSONAL **ARMY, NAVY, AIR FORCE** AND **MARINES** ALL ON ALERT, 24/7, IN MY BODY!"

NUMBER 15:  
**INFLAMMATION**

IT HURTS. **INFLAMMATION** CAUSES REAL PROBLEMS IN **IBD**. BUT, BELIEVE IT OR NOT, IT'S ALSO **PROTECTIVE**, A BODY'S RESPONSE TO HELP FIGHT **INFECTION**. **INFLAMMATION** IS A REALLY COMPLEX **BIOLOGICAL** RESPONSE OF THE BODY. IN **IBD**, **IMMUNE CELLS** REACT TO HARMFUL THINGS LIKE **BAD BACTERIA** AND CAUSE **INFLAMMATION** IN THE GUT AND CAUSE PROBLEMS LIKE **PAIN**.

"DOC, HEY, YOU WERE RIGHT. THIS **INFLAMMATION** HAS GOT ME FEELING **BAD**. THANKS FOR TALKING WITH ME ABOUT WAYS TO TREAT IT 'CAUSE, LET ME TELL YOU, WE GOTTA DO SOMETHING."

NUMBER 16:  
**IRRITABLE BOWEL SYNDROME**

**IBS** CAN BE CONFUSED WITH **IBD**, BUT THEY ARE VERY, **VERY** DIFFERENT. UNLIKE **IBD**, **IBS** IS NOT A **DISEASE**, IT IS NOT CAUSED BY THE IMMUNE SYSTEM. INSTEAD, IT REFERS TO VERY **SENSITIVE INTESTINES**. THE **CRAMP**S AND **DIARRHEA** IT BRINGS ARE TREATED VERY DIFFERENTLY FROM **IBD** BUT...AND A VERY **BIG** BUT, IF YOU HAVE **CRAMP**S AND **DIARRHEA**, YOU NEED YOUR DOCTOR TO HELP FIGURE OUT WHICH ONE IS GIVING YOU THE **SYMPTOMS**.

"OKAY, I GET THAT, DOC, BUT HERE'S THE **BIG BILLION DOLLAR** QUESTION. HOW DO WE KNOW IF IT'S **IBD** OR **IBS**? THAT'S WHAT I'D LIKE TO KNOW!"

NUMBER 17:  
**-ITIS**

WHAT IS **ITIS**? IT IS A **SUFFIX** THAT IS ADDED TO THE END OF WORDS IN **MEDICINE** TO SHOW (REMEMBER THIS FOR YOUR **SATS**!) THAT THERE IS **INFLAMMATION** IN AN ORGAN LIKE **ILEITIS**, **COLITIS**, **PANCOLITIS**, AND **APPENDICITIS**. SO THEN:

**ILEITIS**: IS INFLAMMATION IN THE **ILEUM**  
**COLITIS**: IS INFLAMMATION IN **PARTS** OF THE **COLON**  
**PANCOLITIS**: IS INFLAMMATION IN **ALL** OF THE **COLON**  
**PROCTITIS**: IS INFLAMMATION IN THE **RECTUM** (NOT SURE WHY IT IS NOT **RECTITIS**... BUT **MEDICINE** SOMETIMES FUNNY THAT WAY!)

"DOC, AM I ALLOWED TO SAY, IF MY **PARENTS** ARE REALLY UPSET AND BECOME ALL **RED** AND **ANGRY**, THAT THEY'RE SUFFERING FROM **PARENTITIS**?"

NUMBER 18:  
**MICROBIOME**

**MICROBIOME** DESCRIBES THE **MICROORGANISM**'S COMMUNITY IN OUR BODIES. THE **BACTERIA** AND ALL THOSE THINGS YOU CAN ONLY SEE UNDER VERY **BIG** AND **EXPENSIVE** **MICROSCOPES**. THEY LIVE, THEY REPOPULATE, AND THEY GROW WITHIN US WITHOUT PAYING ANY **RENT**.

"DOC, DID YOU KNOW THAT THERE ARE **TRILLIONS** OF **BACTERIA** IN MY **GUT**? THAT'S GOING TO BE A **LOT** OF **WORK**. GIVING THEM EACH A **NAME**. I MEAN, IF THEY'RE **LIVING** WITH ME, WE OUGHT TO GET TO KNOW EACH OTHER BETTER, **RIGHT**?"

WHEN SOMETHING JUST **WON'T** MOVE THROUGH, IN **IBD**, WHEN THERE'S TOO MUCH **INFLAMMATION**, OR **SCARRING**, THE **INTESTINAL TRACT** CAN GET **BLOCKED** OR **OBSTRUCTED** AND THE **FOOD** JUST **WON'T** MOVE THROUGH THE **GUT**.

"DOC, YOU TOLD ME THAT IF I'M **VOMITING GREEN**, IT COULD BE BECAUSE OF **OBSTRUCTION**. I'M REALLY SORRY ABOUT THAT BECAUSE I HAVE THIS **GREEN SWEATER** I REALLY LIKE BUT NOW, WHEN I LOOK AT IT... WELL...TO TELL YOU THE TRUTH...I HAD TO **STOP** WEARING IT."

NUMBER 19:  
**OBSTRUCTION**

NUMBER 20:  
**REMISSION**

WHEN **EVERY SYMPTOM** OF **IBD** IS COMPLETELY **GONE** THEN YOU ARE LIKELY GOING TO SAY, WITH A **SMILE**:

"DOC, I FEEL GREAT! **WOW!**"

NUMBER 21:  
**REMISSION**  
(PART 2: LABS AND INTESTINAL HEALING)

YOUR DOC WANTS YOU TO **FEEL GREAT** BUT THERE IS ANOTHER PART TO BEING **COMPLETELY** IN **REMISSION** AND THAT IS MAKING SURE YOUR **LABORATORY STUDIES** ARE **NORMAL** AND THAT YOUR **GUT** HAS COMPLETELY **HEALED!** THEN YOU'RE LIKELY TO SAY:

"SEE, **DOC**, TOLD YOU SO!"

NUMBER 22:  
**RELAPSE**

**BUT**, WHEN YOU'RE IN **REMISSION** AND SUDDENLY, ALL YOUR **SYMPTOMS** COME BACK. THEN YOU'RE LIKELY TO SAY:

"**DARN!**"  
THEN ADD:

"DOC, LET'S TALK. WHAT ARE WE GOING TO DO TO MAKE SURE I DON'T **RELAPSE!**"

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"DOC, LET'S TALK. WHAT ARE WE GOING TO DO TO MAKE SURE I DON'T **RELAPSE!**"

NUMBER 23:  
**SKIN TAG**

A **SMALL**, PILLOWY GROWTH ON THE SKIN. IN **CROHN'S DISEASE**, **SKIN TAGS** CAN OCCUR AROUND THE ANUS.

"DOC, IS THIS A SKIN TAG? IT'S FROM THE CROHN'S, RIGHT?"

NUMBER 24:  
**STOOL**

AS SHAKESPEARE WOULD SAY, "A POOP BY ANY OTHER NAME WOULD SMELL AS STINKY." IN ANY WORDS, CALL IT ANY WAY YOU WANT: **FECES**, **KAKA**, **DOO-DOO**, **DUNG**, **EXCREMENT**, **EXCRETA**, **ORDURE**, **BODY WASTE** AND THE BEST, **BROWN-REALLY-YUCKY-STUFF-THAT-CAME-OUT-OF-ME**.

"DOC, YOU OUGHT TO SEE THE STUFF THAT'S COMING OUT OF ME. ALTHOUGH, I WOULDN'T SUGGEST SMELLING IT!"

NUMBER 25:  
**STRESS**

**STRAIN AND TENSION** AND **OVERWHELMING** PRESSURE OFTEN THE RESULT OF A DIFFICULT SITUATION.

"DOC, I FELT LOUSY. LIKE I HAD A HEAVY LOAD ON MY SHOULDERS AND JUST COULDN'T MOVE. SO I TALKED ABOUT HOW I FELT TO MY PARENTS AND I LEARNED SOMETHING VERY INTERESTING. THAT IF THINGS SEEM HARD AND HELPLESS THERE ARE ALWAYS PEOPLE WHO CAN HELP ME OUT...YOU HAD MENTIONED THAT MANY OF YOUR PATIENTS SEE A PSYCHOLOGIST TO HELP THEM TO NOT FEEL CRUMMY...I WOULD LIKE TO SEE ONE. I AM READY TO FEEL GOOD AGAIN."

NUMBER 26:  
**STRICTURE**

A **NARROWING** OF THE **LUMEN** (THE INSIDE SPACE) OF THE **INTESTINAL TRACT**. THIS CAN LEAD TO **OBSTRUCTION** OF THE INTESTINES WHICH MEANS **FOOD** HAS **DIFFICULTY** OR CAN'T PASS THROUGH THE INTESTINES. THIS CAN LEAD TO **VOMITING** AND **WEIGHT LOSS**.

"DOC, IS IT TRUE THAT SEVERE STRICTURES CAN LEAD TO OBSTRUCTIONS IN THE GI TRACT WHICH MAKES YOU VOMIT GREEN? EWWW! I DEFINITELY DON'T WANT THAT!"

NUMBER 27:  
**SYMPTOMS**

GOT A **PAIN** IN YOUR **ELBOW**? GOT A **TICKLE** IN YOUR **NOSE**? GOT A **HEADACHE** EVERY TIME YOU GO ON A **FERRIS WHEEL**? WELL, DO YOU KNOW WHAT YOU **REALLY** HAVE? A **SYMPTOM**. IT'S WHEN YOUR BODY "**FEELS SOMETHING**" WHICH IS NOT USUAL INDICATING A CONDITION SUCH AS **IBD**. THE MOST COMMON SYMPTOMS IN **IBD** ARE **DIARRHEA** AND **PAIN**.

"DOC, I GOT PAIN IN MY STOMACH, STINKY DIARRHEA AND I'M LOSING WEIGHT. HOW WILL YOU GET RID OF MY SYMPTOMS?"

NUMBER 28:  
**ULCER**

IF YOU LOOK AT YOUR **BODY** AND THERE IS, LO AND BEHOLD, AN **OPEN SORE** OR, IF YOU COULD LOOK INSIDE OF YOUR BODY, AND COULD SEE AN **OPEN, FULL-OF-MUCOUS** SORE IN YOUR ALREADY **NOT-HAPPY** INTESTINES, YOU HAVE AN **ULCER**. IT CAN CAUSE A LOT OF **PAIN**. I MEAN, WAY MORE THAN A SIMPLE, "**OUCH!**" THE FIRST THING YOU GOTTA DO IS GO STRAIGHT TO YOUR **GREAT DOCTOR** AND SAY:

"OUCH, DOC, DO SOMETHING, PLEASE!"

NUMBER 29:  
**VACCINES**

YOU WANT TO KNOW A **MAJOR** DIFFERENCE BETWEEN A WORLD THAT HAS **VACCINES** AND A WORLD, LIKE A HUNDRED YEARS AGO, THAT DOESN'T. **LIVING**, **VACCINES** ARE **MEDICINES** TO HELP PREVENT AN INFECTION FROM OCCURRING. **VACCINES** TRIGGER THE BODY TO **TEACH** YOUR **IMMUNE SYSTEM** HOW TO RECOGNIZE AND FIGHT DISEASES LIKE **POLIO**, DISEASES THAT CAN REALLY DO A LOT OF HARM. HOORAY FOR **ANTIBODIES**. THEREFORE, HOORAY FOR **VACCINES**.

"DOC, ARE THERE SPECIFIC VACCINES THAT I NEED BECAUSE OF MY IBD?"

NUMBER 30:  
**TENESMUS**

"GOTTA GO, GOTTA GO, GOTTA GO!" NO, NOT TO **PARIS** OR **SINGAPORE** OR **ANTARCTICA**. ONLY TO GO TO THE **BATHROOM** AND TRY AND TRY TO PASS **STOOL**, **POOP**, OR **WHATEVER** WE'RE CALLING IT NOW...BUT NOT HAVE **ANYTHING** COME OUT.

"DOC, A **BIG QUESTION**. WHY DID THEY HAVE TO GIVE THIS FEELING THAT I HAVE TO **CONSTANTLY GO** TO THE **BATHROOM** EVEN THOUGH THERE'S NOTHING THERE, THE NAME **TENESMUS**? WHY DIDN'T THEY JUST CALL IT **FRUSTRATION**! WHICH IS WHAT IT ACTUALLY IS!"





## FROM HERE #2:

### KNOW THE TESTS, ESPECIALLY THE ONES THAT LET YOUR DOCTOR KNOW HOW YOU'RE DOING

THERE ARE TESTS YOUR **DOCTOR** MAY DO TO MAKE SURE YOU ARE DOING WELL. THERE ARE **MANY** DIFFERENT TESTS AND NOT **ALL TESTS** ARE GIVEN TO **ALL PATIENTS**. THE MOST COMMON ARE SIMPLE **BLOOD** TESTS. SOME OF THESE HELP DETERMINE THE AMOUNT OF **INFLAMMATION** IN YOUR BODY.

#### WHAT LABORATORY TESTS ARE DONE?

##### HEMOGLOBIN AND HEMATOCRIT:

THESE TESTS MEASURE RED BLOOD CELLS IN YOUR BLOOD.

##### WHY ARE THEY DONE?

**RED BLOOD CELLS** ARE ESSENTIAL TO HELP MOVE **OXYGEN** THROUGH THE **BODY**. WHEN THE RED BLOOD COUNT IS TOO "**LOW**" THIS RESULTS IN **ANEMIA** THAT CAUSES **FATIGUE** AND **EXHAUSTION**. THIS IS NOT UNCOMMON IN PEOPLE WITH **ACTIVE IBD**.

##### ALBUMIN LEVELS

**ALBUMIN** IS A **PROTEIN**. ITS PURPOSE IN YOUR **BLOOD** IS TO TRANSPORT OTHER MOLECULES **THROUGHOUT** THE BODY. WHEN IBD IS **ACTIVE**, THERE CAN BE A **DECREASE** IN **ALBUMIN**. WHY? BECAUSE **ALBUMIN** CAN LEAK INTO THE **GASTROINTESTINAL TRACT** AND GET LOST, AND BECAUSE THERE CAN BE A **DECREASED PRODUCTION** IN THE BODY.

##### ERYTHROCYTE SEDIMENTATION RATE (ESR) & C- REACTIVE PROTEIN (CRP)

BOTH OF THESE MEASURE **INFLAMMATION** IN THE BODY. **ESR** MEASURES INFLAMMATION IN THE BODY. WHEN THERE IS INFLAMMATION, THE BODY **PRODUCES** SEVERAL DIFFERENT TYPES OF PROTEINS CALLED **ACUTE PHASE REACTANTS**. THE **ESR** IS THE TIME AT WHICH **RED BLOOD CELLS** (ERYTHROCYTES) FALL IN A SMALL TUBE. IF THERE ARE A LOT OF ACUTE PHASE REACTANTS I.E. **INFLAMMATORY PROTEINS** IN THE BLOOD, IT TAKES MORE TIME FOR RED BLOOD CELLS TO FALL TO THE BOTTOM OF THE TUBE. MORE TIME MEANS **HIGHER ESR**. IF THERE IS NO **INCREASE** IN INFLAMMATORY PROTEINS, THE RED BLOOD CELLS FALL AT A **NORMAL RATE**, AND THE **ESR** IS NORMAL.

**CRP** IS ANOTHER MEASURE OF **INFLAMMATION** IN THE BODY. **CRP** IS A **SPECIFIC ACUTE PHASE REACTANT/PROTEIN** PRODUCED BY THE **LIVER** WHEN THERE IS **INFLAMMATION** IN THE BODY.

IT IS IMPORTANT TO KNOW THAT **ESR** AND **CRP** ARE NOT SPECIFIC FOR **IBD**. THEY BOTH CAN BE ELEVATED IN OTHER **INFLAMMATORY** STATES INCLUDING INFECTIONS LIKE THE **COMMON COLD**.

##### STOOL CALPROTECTIN

**CALPROTECTIN** IS A PROTEIN FOUND IN **INFLAMMATORY CELLS**. **STOOL CALPROTECTIN** IS VERY SIMILAR TO **ESR** AND **CRP** IN THAT IT MEASURES INFLAMMATION, BUT **UNLIKE** ESR AND CRP, IT IS **SPECIFICALLY DESIGNED** TO MEASURE INFLAMMATION IN THE **GASTROINTESTINAL TRACT**. WHILE **STOOL CALPROTECTIN** LEVELS DO NOT DIFFERENTIATE BETWEEN **INTESTINAL INFECTION** AND **INFLAMMATORY BOWEL DISEASE**, THEY CAN BE USEFUL IN TRACKING INFLAMMATION IN **IBD**.

## FROM HERE #1:

**COMMUNICATION!** HOW ELSE IS YOUR **HEALTHCARE TEAM** GOING TO KNOW HOW WELL YOU'RE DOING!

**WHO IS ON YOUR HEALTHCARE TEAM** = VERY CARING **PROFESSIONALS** AND YOU AND YOUR FAMILY

WHAT DOES THIS **TEAM** HAVE TO DO TO MAKE SURE **EVERYTHING** IS GOING AS WELL AS POSSIBLE? TALKING AND HEARING WHAT EACH OTHER IS **SAYING** AND MORE **IMPORTANTLY**, UNDERSTANDING WHAT **EACH PERSON** MEANS WHEN THEY **SAY** SOMETHING. THE MOST IMPORTANT WAY FOR YOUR **HEALTHCARE TEAM** TO **KNOW** HOW YOU ARE FEELING, HOW YOU ARE HANDLING **IBD** AND WHAT YOU WISH WERE **BETTER**, IS TO TELL THEM. **HONESTLY AND OPENLY**. AND, THAT'S TRUE EVEN WHEN YOU FEEL **GREAT** AND ARE DOING GREAT. BECAUSE YOUR TEAM WANTS TO MAKE **SURE** THAT WHEN EVERYTHING IS **FINE**, IT **CONTINUES** BEING FINE, AND WHEN IT'S **NOT-SO-FINE**, IT GETS **BETTER**. NEVER FORGET, **YOU** ARE THE MOST IMPORTANT PART OF THE TEAM. WITHOUT **YOU**, IT JUST **DOESN'T WORK**. BUT, WHEN YOU ALL **WORK TOGETHER**, YOU FEEL YOUR BEST. NO QUESTION ABOUT IT!

YOUR TEAM CAN BE MADE UP OF **MANY DIFFERENT PEOPLE** EACH WITH A DIFFERENT ROLE.

THEY INCLUDE YOUR:



AND OF COURSE, **YOU!**





SOMETIMES YOUR DOC MAY WANT TO GET "RADIOLOGIC TESTS". THESE INCLUDE X-RAYS, BARIUM SWALLOWS, CT SCANS, MRIS. THESE ARE TESTS TO HELP LET YOUR DOCTORS SEE WHAT'S GOING ON *INSIDE* YOUR BODY. THEY ARE FAST, PAINLESS, AND ARE ABLE TO CREATE DETAILED IMAGES OF YOUR GUT, YOUR INTERNAL ORGANS, YOUR BONES, YOUR SOFT TISSUES AND YOUR BLOOD VESSELS. OTHER TIMES YOUR DOC MAY WANT TO PERFORM AN ENDOSCOPY AND COLONOSCOPY. ENDOSCOPY AND COLONOSCOPY LET YOUR DOCTOR LOOK DIRECTLY INTO YOUR INTESTINES WITH A SPECIAL CAMERA ON THE END OF A LONG TUBE. THIS IS HOW A DIAGNOSIS OF IBD IS MADE AND HOW, AFTER TREATMENT, YOUR DOCTOR CAN MAKE SURE THINGS ARE GOING WELL. THEY ARE NOT COMMON TESTS AND ONLY DONE WHEN THEY ARE NEEDED. UNLIKE THE "RADIOLOGIC TESTS" PATIENTS ARE ASLEEP WHILE THEY'RE BEING DONE. PRETTY COOL, DON'T YOU THINK?

## WHY SHOULD YOU KNOW ALL THIS?

FOR YOU! THE MORE YOU KNOW, THE MORE COMFORTABLE YOU WILL BE ABOUT ASKING QUESTIONS AND LISTENING TO THE ANSWERS AND THE BETTER YOU'LL BE IN MAKING DECISIONS. FOR GOOD MEASURE, IT WILL MAKE YOU AND YOUR HEALTHCARE PROVIDERS A REALLY GOOD TEAM! MAKING PERMANENT REMISSION A REALITY.

WHICH, IN THE END, IS WHAT WE ALL WANT.

### WHAT ELSE YOU SHOULD KNOW?

PEOPLE WITH IBD HAVE DIFFERENT SYMPTOMS. EVERYBODY'S IBD IS UNIQUE, ALTHOUGH THERE ARE SIMILARITIES, THERE ARE ALWAYS DIFFERENCES FOR EACH PERSON. THIS IS BECAUSE PEOPLE'S INFLAMMATION CAN BE LOCATED IN DIFFERENT AREAS OF THE GASTROINTESTINAL TRACT, PATIENTS CAN HAVE DIFFERENT AMOUNTS OF INFLAMMATION AND DIFFERENT SENSITIVITIES TO THAT INFLAMMATION. ALSO DIFFERENT PEOPLE CAN RESPOND DIFFERENTLY TO TREATMENTS. THIS DOESN'T MEAN WE CAN'T LEARN FROM EACH OTHER'S EXPERIENCES. WE ABSOLUTELY CAN! BUT IT IS IMPORTANT TO REMEMBER THAT ONE PERSON'S EXPERIENCE MAY BE VERY DIFFERENT FROM ANOTHER'S!

## IBD THERAPIES

THE GOAL OF ANY THERAPY IN IBD IS TO MAKE SURE YOU ARE FEELING GREAT. THIS MEANS THAT YOU HAVE NO SYMPTOMS, ARE GROWING WELL AND THAT ALL YOUR TESTS THAT MEASURE INFLAMMATION ARE NORMAL. DIFFERENT THERAPIES EXIST TO HELP PATIENTS GO INTO REMISSION AND STAY IN REMISSION WITH IBD. SOME PEOPLE USE MEDICATIONS, SOME USE NUTRITION THERAPY, AND SOME USE BOTH MEDICATION AND NUTRITION. YOU AND YOUR DOCTOR WILL DECIDE ON WHAT TREATMENT IS BEST FOR YOU!



## MEDICATIONS

THERE ARE MANY MEDICATIONS AVAILABLE TO TREAT IBD. THESE MEDICATIONS HELP DECREASE INFLAMMATION. THERE ARE MEDICATIONS THAT ARE FOCUSED FOR MILD DISEASE ACTIVITY SUCH AS MESALAMINES AND THERE ARE ONES FOR MORE ACTIVE DISEASE SUCH AS THE IMMUNOSUPPRESSIVE MEDICATIONS. THESE MEDICATIONS CAN WORK GREAT! WHEN DECIDING ON A MEDICATION THERAPY IN IBD, IT IS IMPORTANT TO UNDERSTAND THAT THERE ARE ALWAYS POTENTIAL SIDE EFFECTS, IN FACT, EVEN COMMON MEDICATIONS THAT WE ALL TAKE FOR THINGS LIKE HEADACHES HAVE SIDE EFFECTS ALTHOUGH THESE ARE USUALLY VERY RARE. ASK YOUR DOCTOR WHAT HE/SHE THINKS IS BEST FOR YOU AND WHY.



## EXCLUSIVE ENTERAL NUTRITION (EEN) FORMULA AND DIET

### EEN

NUTRITIONAL THERAPY IN THE FORM OF EEN WORKS EXTREMELY WELL TO TREAT ACTIVE CROHN'S DISEASE. EXCLUSIVE ENTERAL NUTRITION INVOLVES A PATIENT DRINKING ONLY FORMULA (A SPECIFIC LIQUID DIET) FOR 8 TO 12 WEEKS AND NO SOLID FOOD.

THIS FORMULA-BASED DIET HAS WONDERFUL PROMISE. IT WORKS EQUALLY AS WELL AS STEROIDS, A COMMONLY PRESCRIBED MEDICATION, WITH LESS SIDE EFFECTS, BETTER GROWTH AND BETTER HEALING IN THE GASTROINTESTINAL TRACT. WITH EEN, RELAPSE IS COMMON ONCE IT IS STOPPED UNLESS APPROPRIATE MEDICATION THERAPY OR A SPECIFICALLY PRESCRIBED ELIMINATION DIET IS BEGUN.

### DIET

DIET IS AN IMPORTANT ISSUE IN IBD. THIS IS BECAUSE THE FOODS WE EAT AFFECT OUR FECAL MICROBIOME, THE BACTERIA IN OUR INTESTINES AS WELL AS THE INTESTINAL IMMUNE SYSTEM. SOME PEOPLE USE DIET TO TREAT THEIR IBD BY USING A SPECIFICALLY PRESCRIBED DIETARY THERAPY AND OTHER PEOPLE USE A HEALTHY DIET WITH MEDICATION TO MAKE SURE THEIR IBD IS UNDER CONTROL. CURRENT DIETS THAT APPEAR TO WORK FOR IBD ARE WHOLE FOODS DIETS THAT REMOVE FOODS BELIEVED TO INCREASE INFLAMMATION IN THE BODY. THIS INCLUDES GRAINS, MILK PRODUCTS OTHER THAN HARD CHEESES AND YOGURT FERMENTED FOR 24 HOURS, AND SWEETENERS OTHER THAN HONEY. ALTHOUGH, DIETARY CHANGE CAN BE INITIALLY HARD, MANY PEOPLE ARE ABLE TO MAKE THIS TRANSITION AND DO GREAT! A LOT OF RESEARCH IS NOW BEING DONE TO LEARN MORE ABOUT HOW DIET WORKS AND HOW WE CAN MAKE DIETARY THERAPY EASIER. FOR MORE INFORMATION, SEE [WWW.NIMBAL.ORG](http://WWW.NIMBAL.ORG). JUST LIKE MEDICATIONS, THERE ARE PROS AND CONS TO DIET THERAPY.

OUTSIDE OF THE **PRIMARY** TREATMENTS FOR **IBD**, THERE ARE OTHER THINGS YOU CAN **DO** TO HELP YOUR **IBD**.



## SLEEP HYGIENE

**SLEEP WHAT?** SLEEP IS IMPORTANT FOR THE BODY. **DURING** SLEEP YOUR BODY **RECOVERS** FROM THE **STRESS** IT IS UNDER DURING THE DAY. SLEEP IS IMPORTANT FOR BOTH **PHYSICAL** AND **MENTAL** HEALTH. FOR TEENAGERS, WHO ACTUALLY NEED THE **MOST** SLEEP, **8-10 HOURS** A DAY IS RECOMMENDED.

## DEAL WITH STRESS HEAD ON

**EVERYONE** HAS **STRESS!** WHETHER THE STRESS IS CAUSED BY SCHOOL, FRIENDS, FAMILY, **IBD**, OR **SOMETHING ELSE**, BY DEALING WITH IT, YOU CAN MAKE SURE YOU FEEL YOUR **BEST**. SOMETIMES IT CAN BE HARD TO KNOW HOW TO DEAL WITH YOUR **STRESS** AND THAT'S WHERE YOUR **HEALTH CARE TEAM** COMES IN. **ASK THEM!** THEY ARE LIKELY TO HAVE GOOD ADVICE AND GREAT TOOLS.



## EXERCISE

EXERCISE HELPS THE BODY IN **SO MANY** WAYS. IT DOESN'T HAVE TO BE A **HUGE** AMOUNT OF RUNNING, BIKING, SWIMMING, KARATE, ETC. DO **WHATEVER** IT IS THAT YOU **LOVE** TO DO. IT DOESN'T HAVE TO BE AT AN EXTREMELY **HIGH INTENSITY** ALL THE TIME. BY USING YOUR **BODY** YOU CAN HELP YOUR **BODY** FEEL BETTER AND **HEAL**. REMEMBER, **WALKING** IS ALSO GOOD **EXERCISE!**



## YOU'RE MORE THAN YOUR IBD

YOU ARE AN **AMAZING** HUMAN AND **IBD** IS ONLY A **PART** OF WHO YOU ARE. IT IS **IMPORTANT** HOWEVER, TO KEEP UP WITH YOUR **TREATMENT** WHETHER IT IS **MEDICATION** OR **DIET**. SOMETIMES PATIENTS FEEL **SO GOOD** THAT THEY THINK THEIR **IBD** IS GONE FOREVER AND STOP THEIR TREATMENT. **UNFORTUNATELY**, **IBD** USUALLY COMES BACK IF TREATMENT IS STOPPED AND **SOMETIMES** IT CAN BE HARDER TO TREAT WHEN IT DOES.

**FUN!** **ARTISTIC!**  
**SMART!** **FUNNY!**  
**BRAVE!** **OUTGOING!**  
**CREATIVE!**

## MEET AND JOIN YOUR COMMUNITY

THE **CROHN'S AND COLITIS FOUNDATION** SPONSORS AN AWESOME CAMP CALLED **CAMP OASIS**. IT IS A GREAT EXPERIENCE! YOU GET TO HANG OUT WITH KIDS WHO ARE SMART, CREATIVE, FUN, ENGAGING AND ALSO HAVE **IBD**, LIKE YOU!



## THE PROFESSOR



**PROFESSOR NIMBAL** (NUTRITION IN MEDICINE BALANCED) IS NO ORDINARY PROFESSOR. HE IS ON A **MISSION** TO EDUCATE KIDS AND THEIR FAMILIES ABOUT THE **AMAZING EFFECT** DIET CAN HAVE ON YOU AND YOUR FAMILY'S **HEALTH**.

**PROFESSOR NIMBAL** AND THIS **COMIC BOOK** WERE CREATED TO HELP OUR COMMUNITY HAVE A CLEARER UNDERSTANDING OF THE EDUCATION AND RESEARCH BEHIND USING **DIETARY THERAPY AS MEDICINE** AND WHY THIS TYPE OF **INTERVENTION** MIGHT BE THE RIGHT ONE FOR YOU AND YOUR FAMILY. **PROFESSOR NIMBAL**, JUST LIKE YOUR **HEALTHCARE PROVIDERS**, WANTS TO HELP YOU BECOME THE **HEALTHIEST PERSON** YOU CAN BE!

## THE CREATOR AND WRITER

**DAVID SUSKIND MD**, IS A **PEDIATRIC GASTROENTEROLOGIST** AND **PROFESSOR OF PEDIATRICS** AT **SEATTLE CHILDREN'S HOSPITAL** AND **UNIVERSITY OF WASHINGTON SCHOOL OF MEDICINE** AND A CHILDHOOD FRIEND OF **PROFESSOR NIMBAL**.

ALTHOUGH HE DOESN'T GET TO TRAVEL AROUND IN A **PEOPLE OPERATED OMNIVERSE PROJECTILE (P.O.O.P)**, HE DOES GET TO LEAD A NATIONAL EFFORT TO INTEGRATE **NUTRITIONAL THERAPY** INTO THE CLINICAL CARE FOR PATIENTS WITH **INFLAMMATORY BOWEL DISEASE**. AN EXPERT IN INTESTINAL DISEASES AND FIGHTING "**BAD**" BACTERIA, HE HAS FOCUSED MUCH OF HIS ENERGY INTO THE CLINICAL CARE OF PATIENTS WITH **IBD** AS WELL AS RESEARCH ON THE EFFECTS OF **DIETARY THERAPY** IN INFLAMMATORY BOWEL DISEASE. HE BELIEVES IN PATIENT AND FAMILY EMPOWERMENT THROUGH EDUCATION, AND HE BELIEVES IN **YOU!**



## THE ARTIST

**JASON PIPERBERG** IS AN **ILLUSTRATOR, COMIC ARTIST, AND STORYTELLER** WHO HAS WORKED ON PROJECTS LIKE **RAISING DION** AND **CHAMPIONS OF HARA** AS WELL AS HIS OWN CREATOR OWNED COMIC, **SPACEMAN AND BLOATER**. HE'S ALSO **PROFESSOR NIMBAL'S** PERSONAL **STYLIST**.

IN 2012 JASON GRADUATED FROM **THE UNIVERSITY OF THE ARTS** IN **PHILADELPHIA** WITH A **BFA IN ILLUSTRATION**, AND HAS ALWAYS HAD A LOVE FOR ILLUSTRATION, COMICS, SUPER HEROES, SCI-FI, ROBOTS, AND ANYTHING RELATED TO NARRATIVE IMAGERY AND **STORYTELLING**. HE CURRENTLY HAS HIS DREAM JOB WORKING AS A **FREELANCE ILLUSTRATOR** IN **LANCASTER, PA**.







**NIMBAL  
COMICS**

\$4.99  
ISBN 978-0-9972981-2-3  
50499>



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