

Pre- and Probiotics



Probiotics

- Definition = “live microorganisms, which, when administered in adequate amounts, confer a health benefit on the host”
- How measured
 - colony forming units (CFUs)
 - # live microbes it contains



Probiotics: Sources

- Bacteria, Viruses, Yeasts
 - Lactobacillus
 - Bifidobacterium
 - No two strains or species alike
- Found in and added to foods and dietary supplements
 - Yogurt, fermented milk (kefir), miso, tempeh, soy drinks



Probiotics: “Good” Gut Flora

- 500+ species bacteria in GI tract
- Role of “good” bacteria
- How “good” bacteria (probiotics) work



Probiotics: Health Benefits

- Diarrhea & Antibiotics
 - can recommend probiotics, but dosing need more evidence (level B)
 - Cdiff
 - **lactobacillus GG & s. boulardii** to treat recurrence
 - Antibiotic associated diarrhea (AAD)
 - **lactobacillus GG & s. boulardii**
 - Acute diarrhea and traveler's diarrhea
 - **s. boulardii; L. acidophilus & bifidobacterium bifidum**
 - Radiation-induced diarrhea



Probiotics: Health Benefits

- Inflammatory bowel disease (e.g. Crohn's, Ulcerative Colitis)
 - **E. coli strain Nissle 1917** shown as effective as mesalazine (Asacol) for remission of UC (level B)
 - **VSL #3** more effective than mesalazine for remission of Crohn's (level B)
 - Some trials show no improvement
 - More evidence needed to routinely recommend probiotics however (Level B)
 - Area of opportunity: match species, dose, age, and disease phase



Probiotics: Health Benefits

- Irritable Bowel
 - Small # of studies show symptom improvement
 - **Bifidobacterium infantis** w/ dose 10^8 CFUs (Level B)
 - Need more randomized, controlled trials



Probiotics: Health Benefits

- Emerging areas of application & research
 - Pouchitis, H Pylori infections, vaginal infections, heart disease (lipid levels), oral diseases, diabetes
 - General population infection prevention (e.g. daycare centers, elderly)



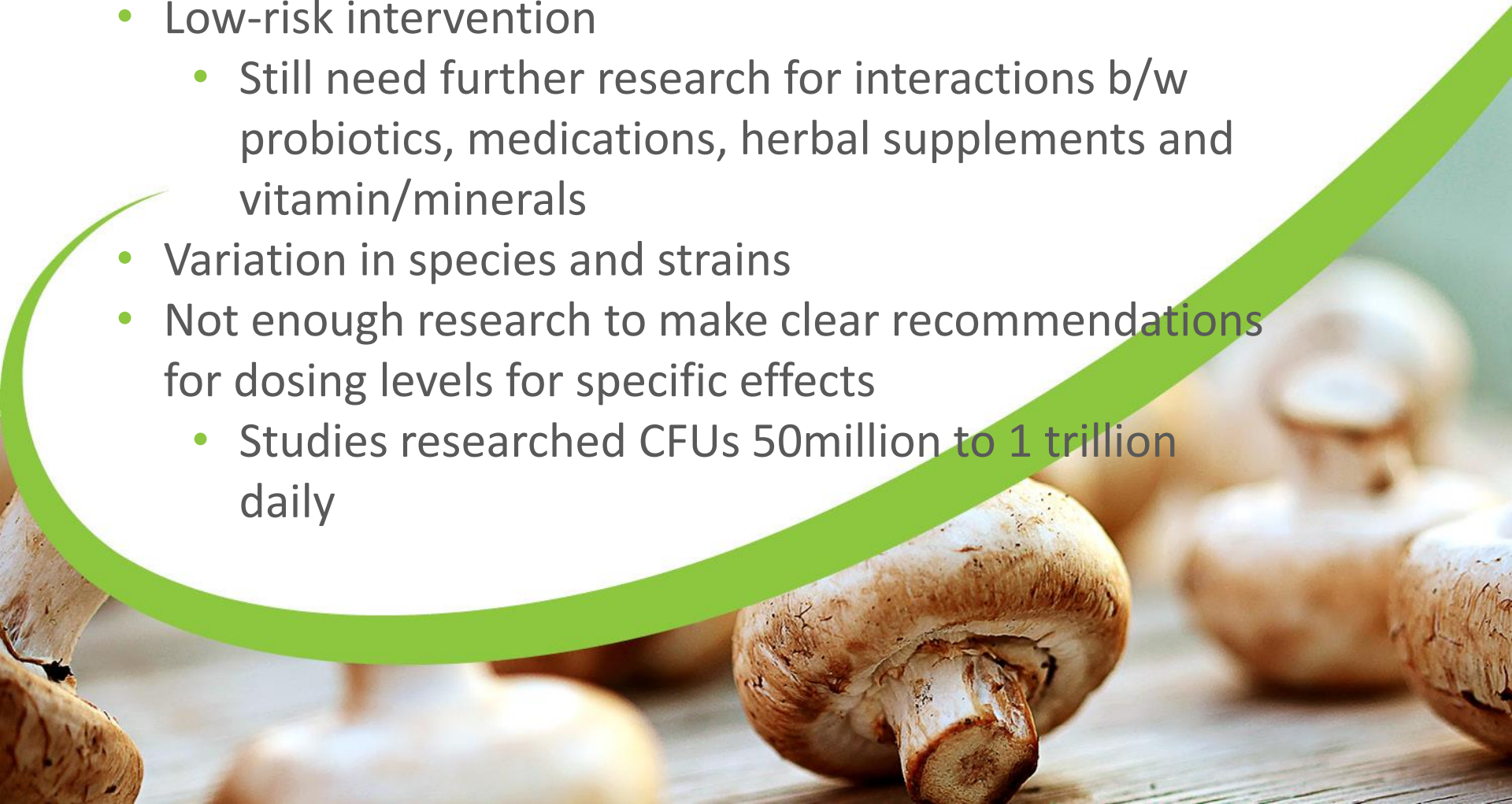
Probiotics: Contraindications

- Acute Pancreatitis (Level A)
- ICU – use & outcomes of probiotics unpredictable (Level C)



Probiotics Overall

- Dietary supplement
- Low-risk intervention
 - Still need further research for interactions b/w probiotics, medications, herbal supplements and vitamin/minerals
- Variation in species and strains
- Not enough research to make clear recommendations for dosing levels for specific effects
 - Studies researched CFUs 50million to 1 trillion daily



International Scientific Association for Probiotics and Prebiotics

- Pick trusted manufacturer
- Strain
- CFU
- Suggested serving size
- Storage conditions
- Corporate contact info
- See [Clinical Guide](#)



Prebiotics

- Definition = “nondigestible food ingredients that selectively stimulate the growth and/or activity of beneficial microorganisms already in people’s colons”
- function as food source for probiotics



Prebiotics: Sources

- Fructans, most commonly inulin and phlein
- Oat gum
- Pectin
- General good food sources are those high in fiber:
 - Artichokes
 - Apples
 - Bananas
 - Chicory (e.g. endive, root)
 - Barley, quinoa, millet, oats
 - Berries
 - Legumes



Prebiotics: Health Benefits

- Reduce constipation and treating/preventing diarrhea (Level B)
- Emerging research for IBS & weight control
- no consistent evidence as independent effect risk of colon cancer



Prebiotics: Overall

- Low risk with supplementation
- Potential side effects:
 - may reduce bioavailability of carotenoids & vit E
 - may reduce absorption of lycopene & lutein (21)



References & Resources

- Adapted from Probiotics and Prebiotics as produced in Nutrition Dimensions by Elizabeth Chiodo, RD, LDN
- International Scientific Association for Probiotics and Prebiotics www.isappscience.org

