

A photograph of a tall glass of amber beer with a thick white head of foam, sitting next to a plate of sliced crusty bread on a dark, reflective table. The text 'Auto-Brewery Syndrome' is overlaid in white, underlined font across the center of the image.

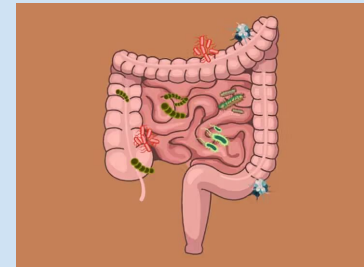
Auto-Brewery Syndrome

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What is Auto-Brewery Syndrome

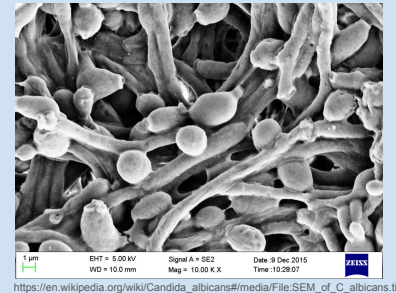
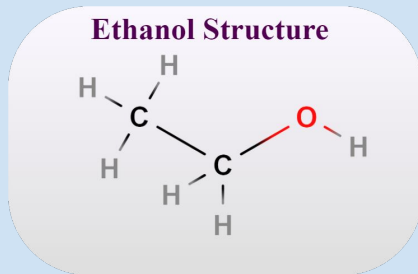


- Auto-brewery syndrome (ABS), also known as gut fermentation syndrome, is a very rare disorder.
- Characterized by the production of alcohol.
- Common symptoms- alcohol intoxication, slurred speech, gastrointestinal distress, and state of confusion.
- Ethanol is produced through endogenous fermentation by fungi or bacteria in the gastrointestinal (GI) system, oral cavity, or urinary system.
- Several strains of fermenting yeasts and rare bacteria are identified as pathogens.



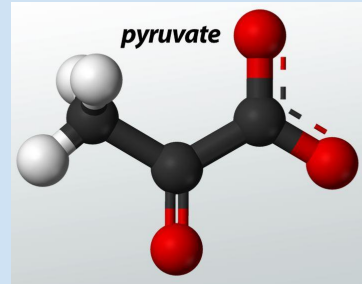
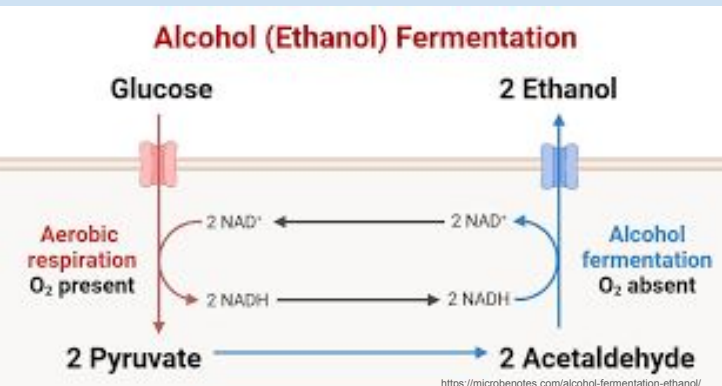
Auto-Brewery Syndrome continued...

- The production of endogenous ethanol occurs in minute quantities as part of normal digestion, but when fermenting yeast or bacteria become pathogenic, extreme blood alcohol levels may result.
- Various yeasts from the *Candida* and *Saccharomyces* families are commensals turned pathogenic that cause auto-brewery syndrome. Several strains of bacteria are also known to ferment ethanol.

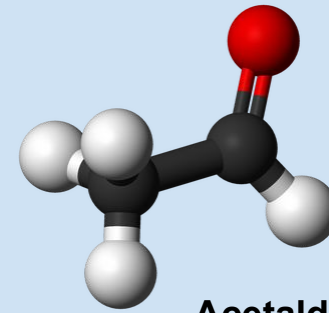


Ethanol Fermentation

- Through ethanol fermentation, there are multiple factors and steps are taken to produce some amount of ATP.
 - With a little use of 2 adenosine diphosphate (ADP), glucose is turned into 2 pyruvate and as well yields NADH (Nicotinamide adenine dinucleotide), a crucial molecule for glycolysis.
 - It's important to note that 2 NADH (the reduced version of NAD^+), is formed with the use of 2 NAD^+ .
 - The 2 pyruvate formed will turn into its derivative, 2 acetaldehyde, producing carbon dioxide in the process. 2 Acetaldehyde is an electron acceptor, and since NAD^+ has reduced to NADH, NADH can give 2 Acetaldehyde electrons. This then allows NADH to oxidize, returning back to NAD^+ and used again in glycolysis.
 - In the process of the transfer of electrons from NADH to 2 acetaldehyde, ethanol is produced as a waste.



<https://study.com/academy/lesson/what-is-pyruvate-definition-lesson-quiz.html>



Acetaldehyde

<https://en.m.wikipedia.org/wiki/File:Acetaldehyde-3D-balls.png>

Auto Brewery Syndrome Risk Calculator *Programmed using Java*

Output

More

▶ Run

Stop

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Auto-Brewery Syndrome Risk Assessment
Do you frequently experience the following symptoms? (yes/no)
1. Feeling intoxicated without consuming alcohol: no
2. Unexplained dizziness or fatigue: no
3. Memory loss or confusion: no
4. Digestive issues (bloating, diarrhea, etc.): no
5. Sugar or carbohydrate cravings: no
Please answer the following lifestyle questions: (yes/no)
1. Do you consume a high carbohydrate diet? no
2. Do you have a history of antibiotics use? no
3. Do you have any known yeast infections? no
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Risk Assessment:

Low risk: You are at low risk for Auto-Brewery Syndrome. If you have concerns, consider consulting a healthcare professional.

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Future Directions

- **Current solutions**

- **Diet changes**
- **Antibiotic drugs**

- **Solutions for the future**

- **Antifungal agents: Target and reduce yeast population**
- **Probiotics: Have the good bacteria outdo the bad bacteria**
- **Enzyme Inhibitors: Inhibit enzymes which produce the alcohol**



<https://www.fda.gov/news-events/fda-voices/fda-and-ema-collaborate-facilitate-ears-cov-2-vaccine-development>

Works Cited

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