

Miami Area Society of Homebrewers Meeting

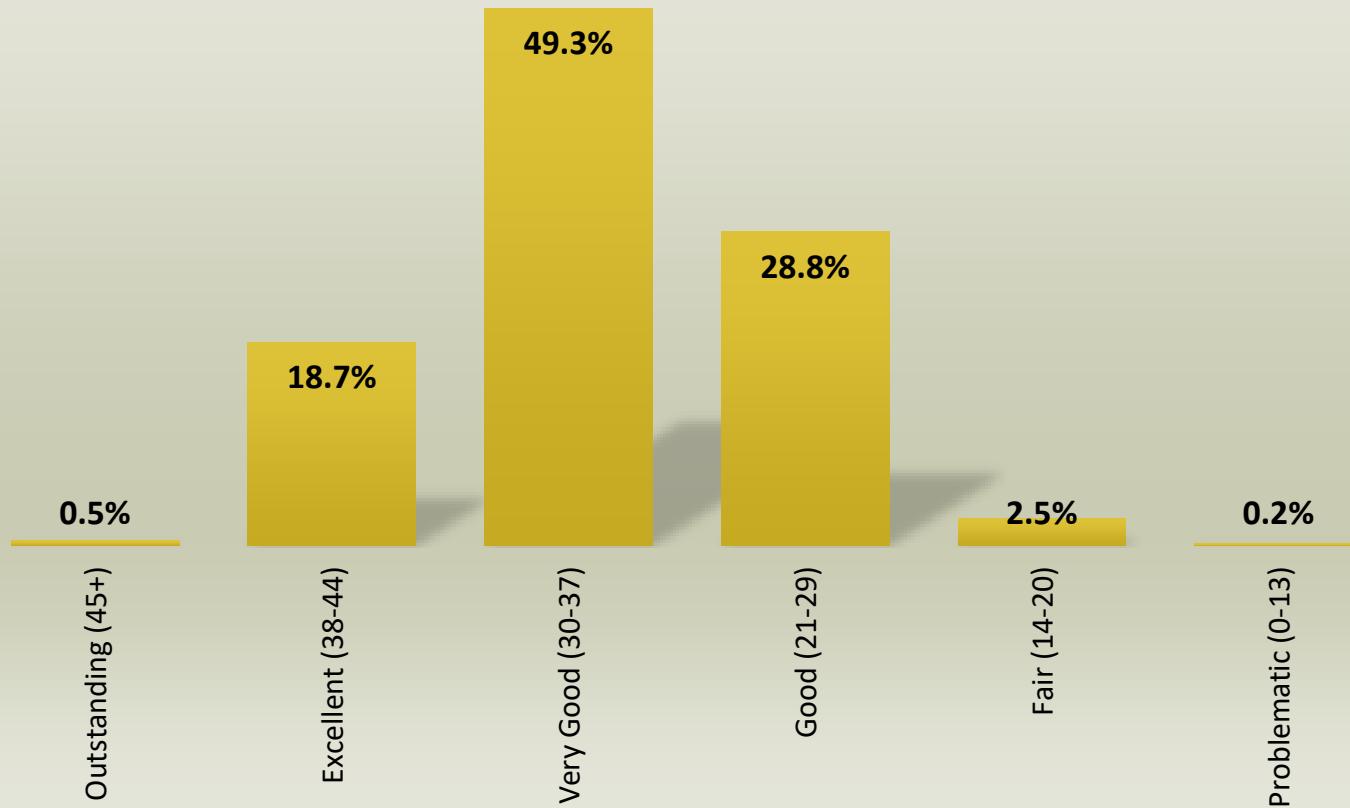


March 22, 2018

Coconut Cup!



Coconut Cup!



Total of 434 judged beers

High Score: 45
Low Score: 13
Average: 32.26

2018 MASH Medal Update

- CC winners included Dave Kirsten (1, 2, 3), Bob and Rachel Bilany (1, 3), Marie Waldron (1, 3), Chris Lopez (2, 3), Gabriel Valez (3), and Daniel Morales (2)
- MASH now has 13 medals for the year.

GOLD

5

SILVER

3

BRONZE

5

The background features a dark, textured collage of various school-related items. On the left, there is a globe showing the continents of North and South America. Above the globe, there are several circular objects, possibly coins or medals, and a stack of books. To the right of the globe, there are several rectangular objects, possibly papers or folders, and a large, stylized letter 'A'. On the far right, there is a drawing of a microscope. The entire collage is rendered in a light, sketchy style against a dark background.

MASH FLASH UPDATES

HURRICANE BLOWOFF RAILROAD



MASH Membership Card UPDATE



- Gets you sweet discounts at many local Miami-area businesses, with more on the way (7 businesses)
- Opens your beer!
- **PAY YOUR DUES, REAP THE REWARDS**

Upcoming events

FemAle Brewfest - March 24th

Sprung! - April 7th

Urban Brewers Updates



Spike Brewing

- Group buy opportunity, contact Matt Waldron
- Through March 31, 15% off all MASH member purchases if group purchase is in excess of \$2000

Treasurer's Report

Account Balances 3/21

ASSETS	
Cash and Bank Accounts	
Checking	1,805
PayPal Account	4,203
Cash Account	362
TOTAL Cash and Bank Accounts	6,370
TOTAL ASSETS	6,370
LIABILITIES	0.00
OVERALL TOTAL	6,370



\$1,076

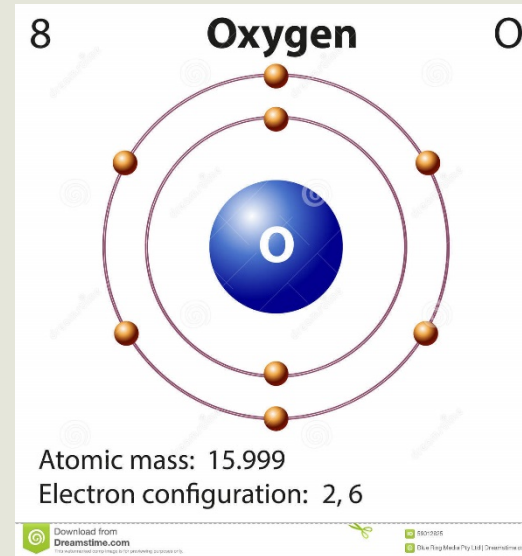
Cash Flow

TOTAL INFLOWS	4,332
TOTAL OUTFLOWS	2,938
OVERALL TOTAL	1,394

Paid Members: 40

Coconut Cup Financial Comparison

	<u>2018</u>	<u>2017</u>	<u>2016</u>
Income			
Entry Fees	\$ 3,492	\$ 3,171	\$ 2,926
Raffle	\$ 465	\$ 417	\$ 322
Expenses	\$ (1,636)	\$ (2,096)	\$ (2,108)
Total	\$ 2,321	\$1,492	\$1,140



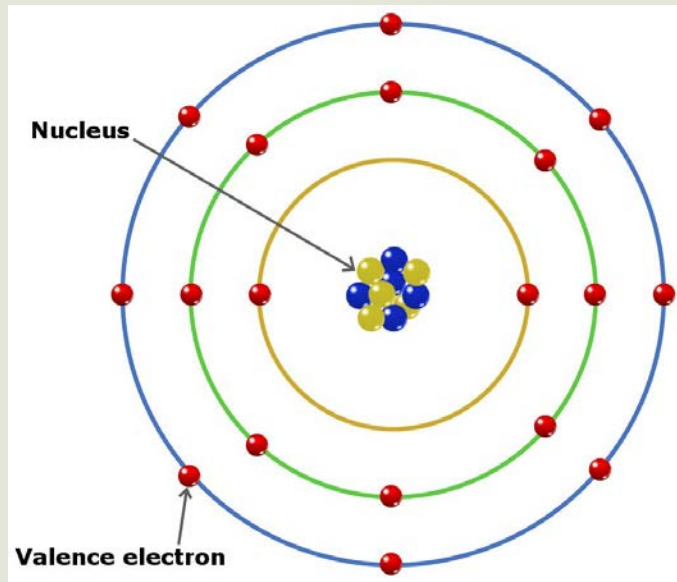
EDUCATION SESSION

Oxygen and yeast

WHY DOES IT MATTER TO YEAST?

Education session no. 2 of 3

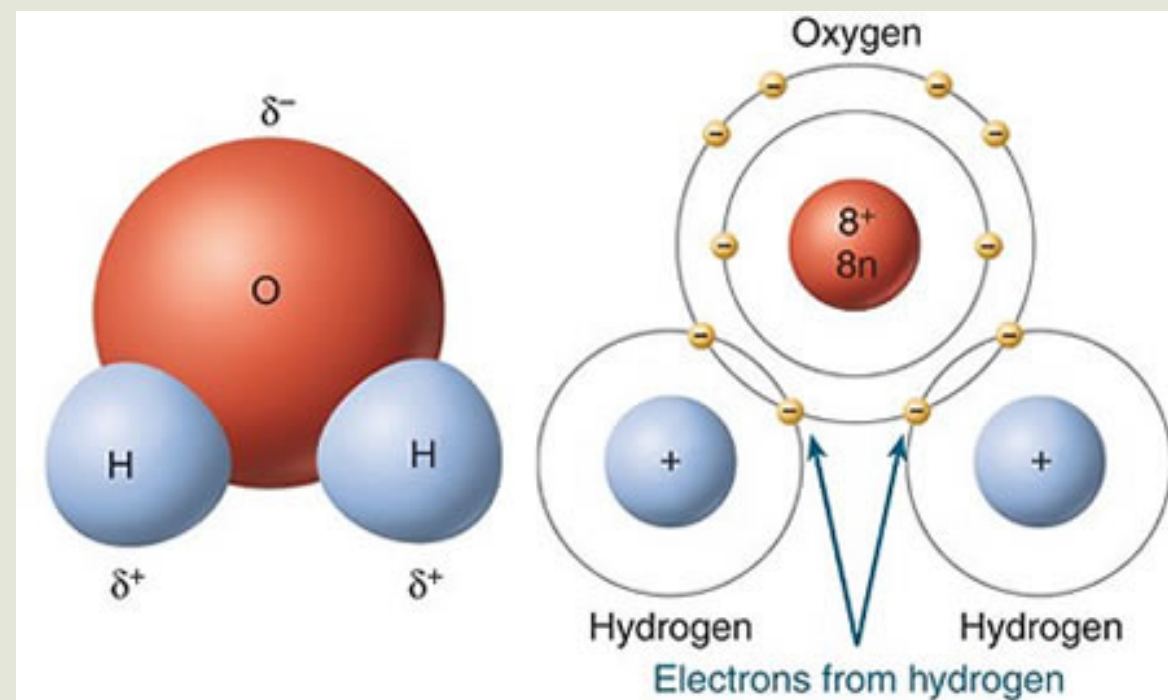
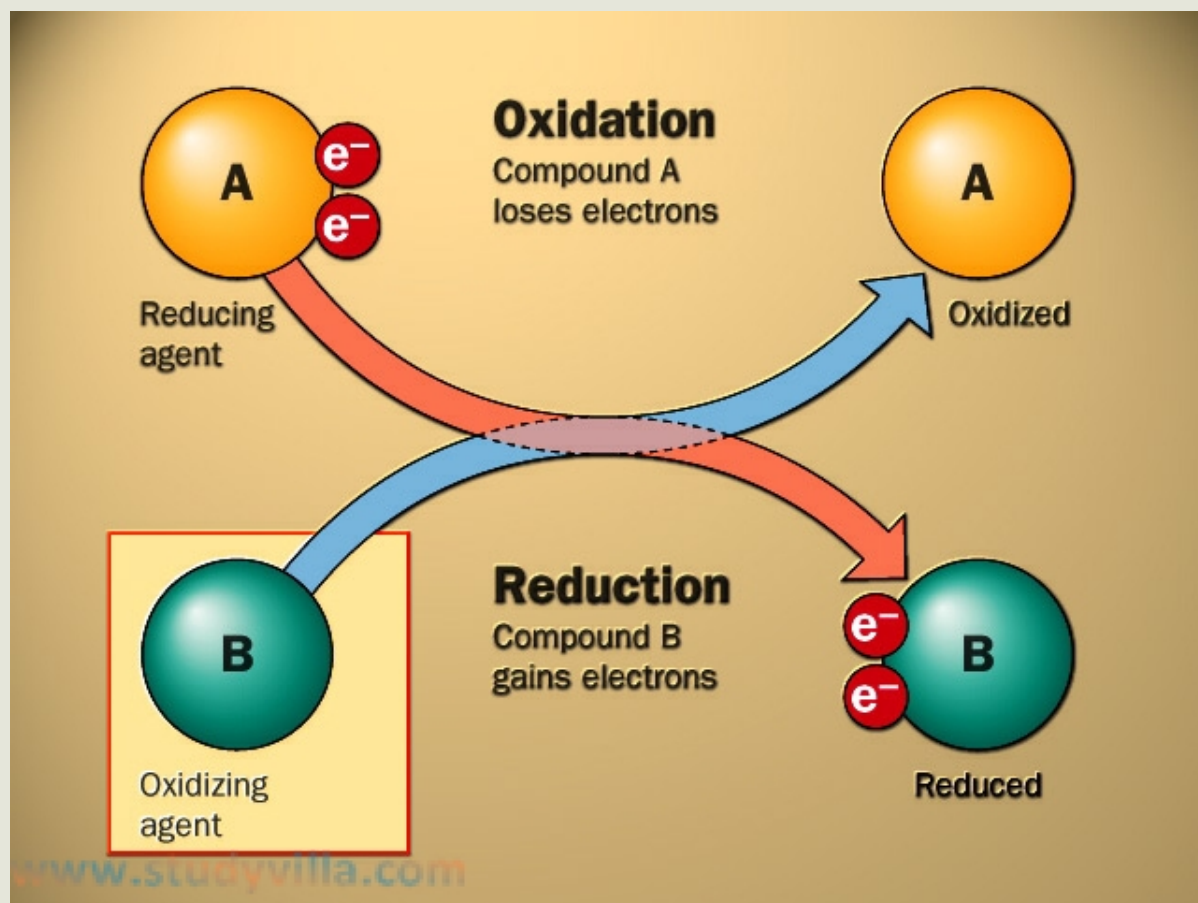
A FLASH REFRESHER ON OXYGEN



Pauling Electronegativity Values																		He
H 2.1																	Ne	
Li 1.0	Be 1.6											B 2.0	C 2.5	N 3.0	O 3.5	F 4.0	Ar	
Na 0.9	Mg 1.3											Al 1.5	Si 1.9	P 2.2	S 2.6	Cl 3.0	Kr	
K 0.8	Ca 1.0	Sc 1.4	Ti 1.5	V 1.6	Cr 1.7	Mn 1.5	Fe 1.8	Co 1.9	Ni 1.9	Cu 1.9	Zn 1.6	Ga 1.8	Ge 2.0	As 2.2	Se 2.6	Br 2.8	Xe	
Rb 0.8	Sr 0.9	Y 1.2	Zr 1.3	Nb 1.6	Mo 2.2	Tc 1.9	Ru 2.2	Rh 2.3	Pd 2.2	Ag 1.9	Cd 1.7	In 1.8	Sn 2.0	Sb 2.1	Te 2.1	I 2.5		

Charles E. Sundin, University of Wisconsin-Platteville

A FLASH REFRESHER ON OXIDATION



TRUE OR FALSE?

Yeast cells require
oxygen to survive

FALSE!

“Through it flies in the face of popular wisdom, yeast does not go through a respiration phase in the early stages of fermentation. A careful look at yeast metabolism and reproduction reveals a common misunderstanding and points the way to more sophisticated applications of oxygen in the brewery.”

- Tracy Aquilla - Brewing Techniques

Fermentation is exciting



Wort oxygenation



Yeast and oxygen

Most of the popular brewing literature indicates that brewers' yeast required dissolved oxygen for a brief period of time after pitching so the cells can respire and grow, implying that yeast needs oxygen to bud and must respire before it can ferment wort.

Not true. So, why do we do it??

You breathe faster when you exercise

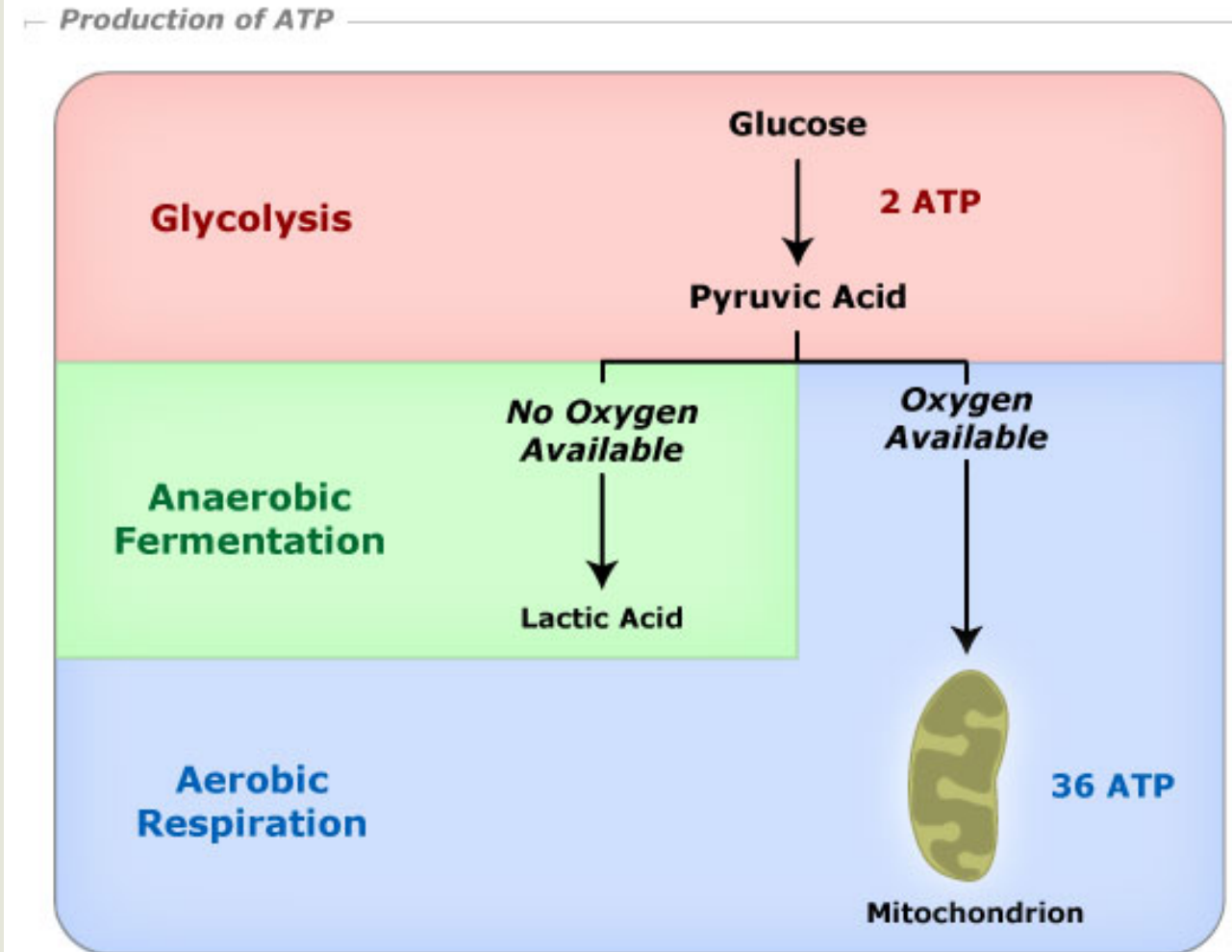
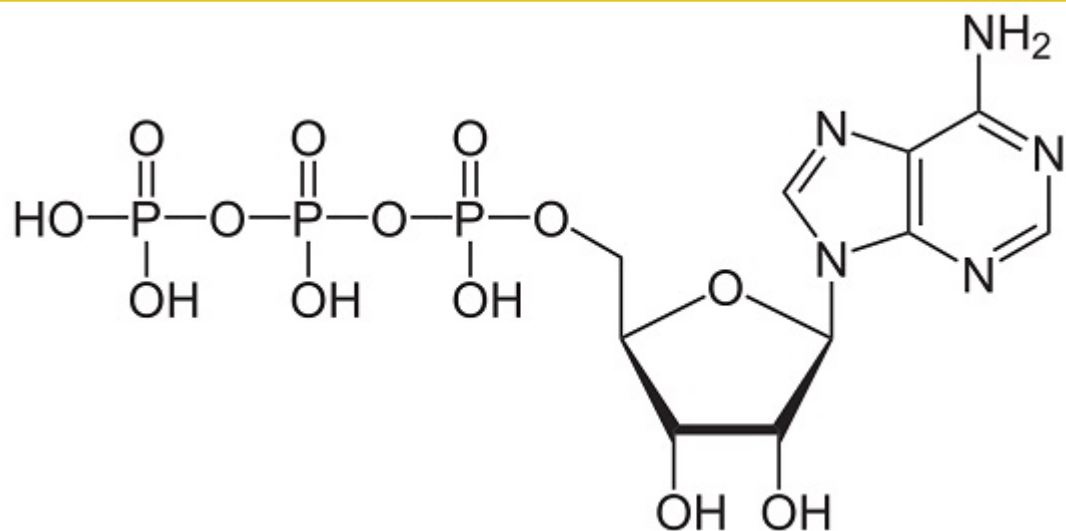
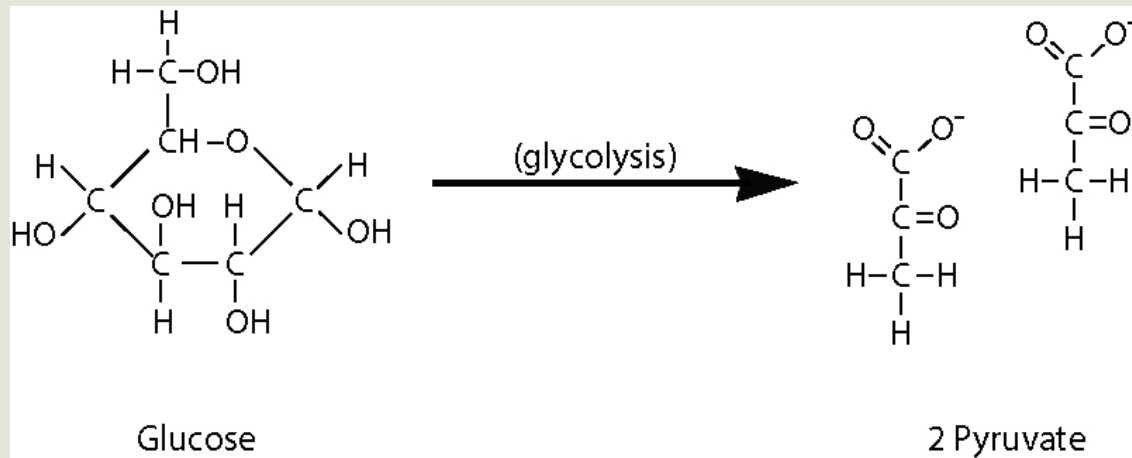


When you stop breathing, things aren't good



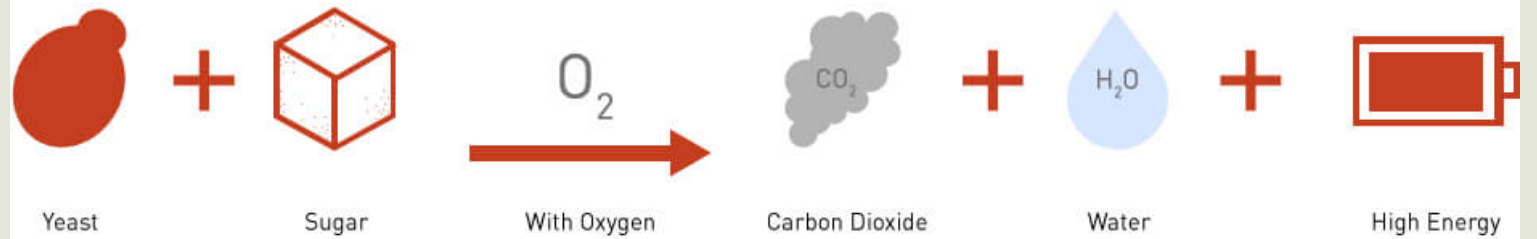
WAIT BUT WHY

Cellular respiration – too complicated... but big picture is...

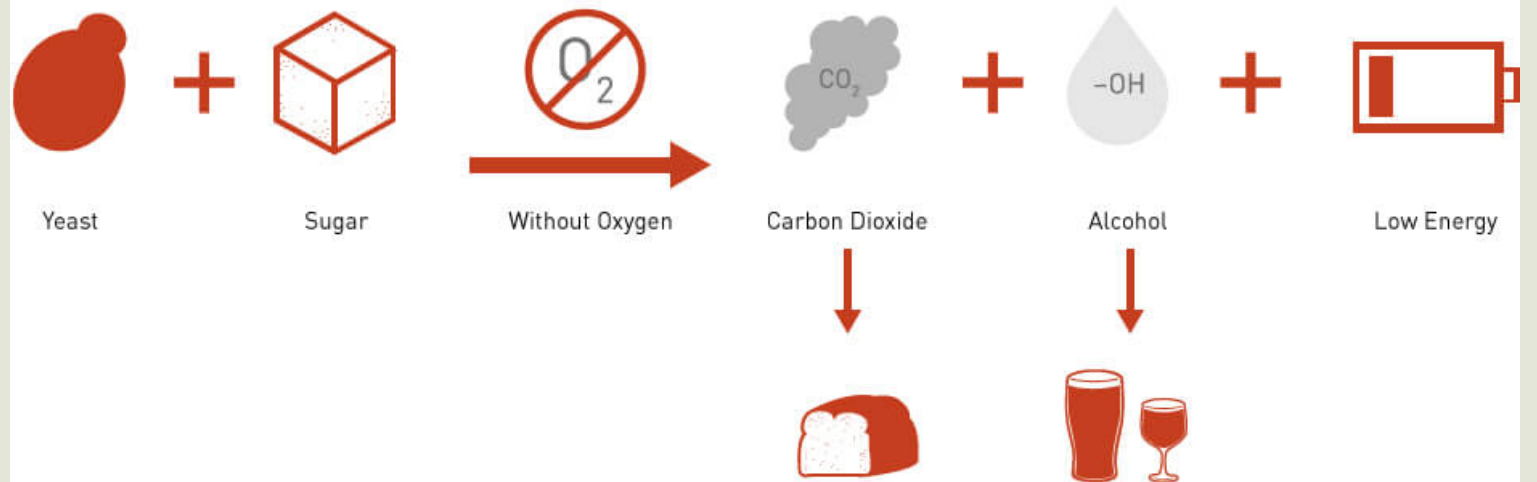


Respiration vs Fermentation in Yeast Cells

Respiration



Fermentation



Yeast, what ya gonna do?

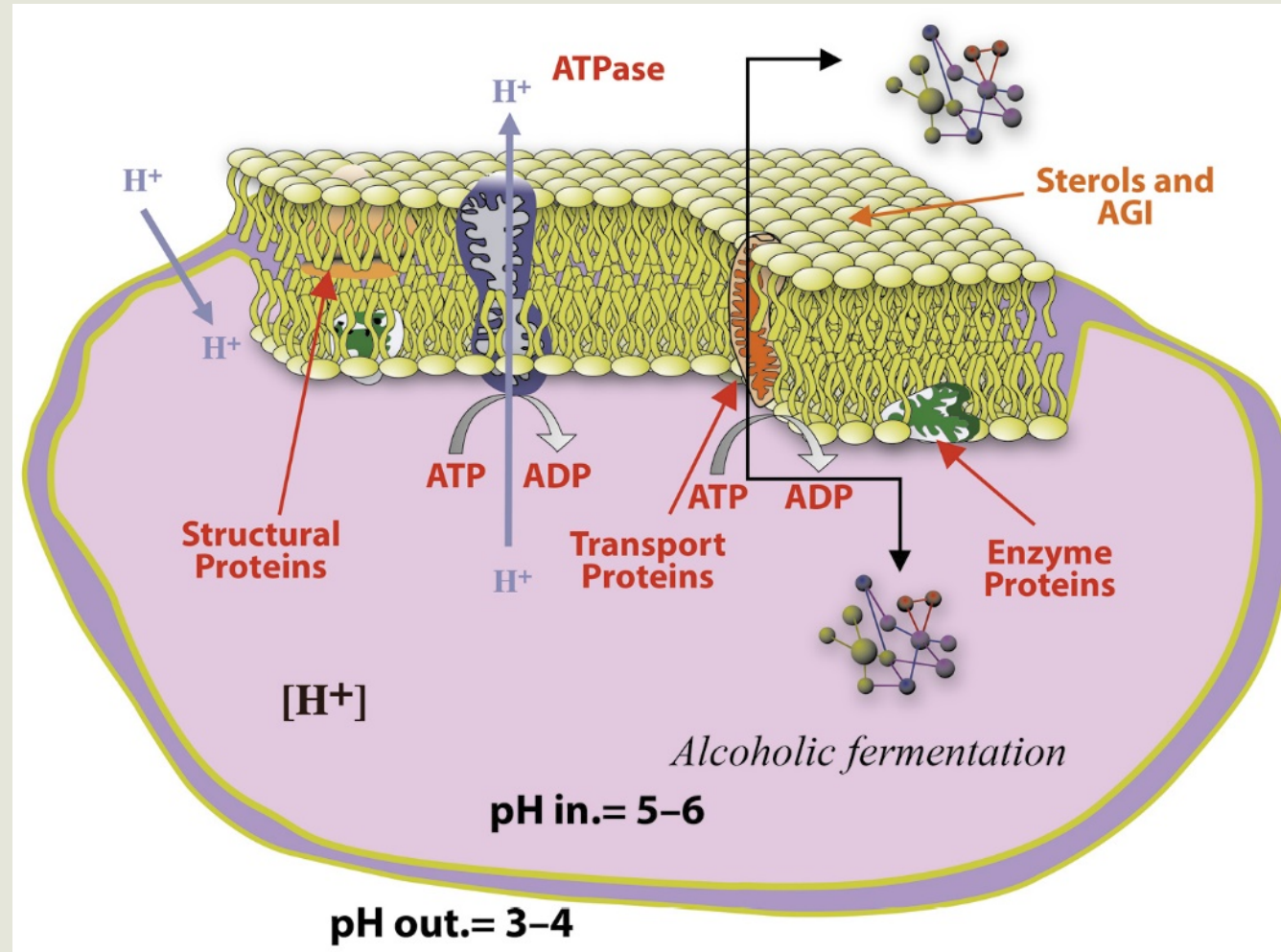
- So yeast can use any of three major metabolic modes:

1. aerobic fermentation in the presence of sugar and oxygen,
2. anaerobic fermentation in the presence of sugar but absence of oxygen,
3. and respiration (necessarily aerobic) in the presence of oxygen and a low concentration of fermentable sugar. ☹️

Begs the question...

So, if yeast cells don't NEED oxygen for respiration, why do we add it to the wort when we pitch yeast?

Cells use oxygen to biosynthesize strong cell walls



Wanna know more?

https://www.morebeer.com/articles/oxygen_in_fermentation

- (1) J.S. Hough, D.E. Briggs, R. Stevens, and T.W. Young, *Malting and Brewing Science*, 2nd Ed. (Chapman and Hall, Cambridge University Press, UK, 1982).
- (2) J.P. van Dijken, R.A. Weusthuis, and J.T. Pronk, "Kinetics of Growth and Sugar Consumption in Yeasts," *Antonie van Leeuwenhoek* **63** (3–4) pp. 343–52 (1993).
- (3) O. Kappeli, "Regulation of Carbon Metabolism in *Saccharomyces cerevisiae* and Related Yeasts," *Advances in Microbiological Physiology* **28**, pp. 181–209 (1986).
- (4) J.S. Hough, *The Biotechnology of Malting and Brewing* (Cambridge University Press, Cambridge, UK, 1991).
- (5) D.S. Thomas and A.H. Rose, "Inhibitory Effect of Ethanol on Growth and Solute Accumulation by *Saccharomyces cerevisiae* as Affected by Plasma-Membrane Composition," *Archives of Microbiology* **122** (1), pp. 49–55 (1979).
- (6) C. Verduyn, E. Postma, W.A. Scheffers, and J.P. van Dijken, "Physiology of *Saccharomyces cerevisiae* in Anaerobic Glucose-Limited Chemostat Cultures," *Journal of General Microbiology* **136**, pp. 395–403 (1990).
- (7) Gary W. Knull, "Readers' Tech Notes: The Trouble with Trubless Fermentations," *BrewingTechniques* **4** (5), pp. 14–19 (September/October 1996).
- (8) Patrick Daugherty, Jack Adkins, and Scott Bickham respond to the article in reference 7, in "Readers' Tech Notes," *BrewingTechniques* **5** (1), pp. 16–18 (January/February 1997).
- (9) Gregory J. Noonan, *Scotch Ale* (Brewers Publications, Boulder, Colorado, 1993).

Did you follow?

- What is the different between respiration and fermentation?
- Does yeast need oxygen?
- Do brewers need to oxygenate wort?
- What are the benefits of oxygenating?

A dark grey background featuring a collage of white line-art illustrations of school supplies. On the left, there is a globe showing continents. Above it, a ruler and two circular protractors are visible. In the center, a stack of books is depicted. On the right, a microscope is shown. At the bottom, there are various geometric shapes like triangles and rectangles, and a compass.

MASH ANNOUNCEMENTS

Floor is free



BoTY Competition

Fruit Beer (29A, 29B, 29C)

Looking ahead

April: American Porter and Stout (20A, 20B, 20C)

May: Pale Bitter European Beer (5A, 5B, 5C, 5D)

June: SMaSH Beer (single malt, single hop)