



World Water Safety

INTERNATIONAL LIFE SAVING FEDERATION

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MEDICAL POSITION STATEMENT - MPS 18

EATING BEFORE SWIMMING

BACKGROUND

There is a longstanding advice that one should wait after eating before swimming. Often an hour of wait is recommended. This review is conducted to evaluate the evidence that eating is a risk factor for drowning and that waiting to swim after eating will decrease this risk.

Question

Is there evidence that persons who have eaten recently have increased risk (over that of the general population) to participate in bathing, recreation, instruction and competition on and in-water activity?

STATEMENT

There is no evidence that eating before swimming increases risk for drowning. While eating has been associated with nausea, vomiting, and abdominal pain, the causal relationship between these phenomena and drowning risk has not been reported nor well studied. Therefore, recommendations on amounts, timing, and food type when eating prior to swimming or water activities cannot be based on scientific evidence.

LITERATURE REVIEW

Conducted by Dr Linda Quan MD December 2013

- Databases searched included: PubMed, Ovid Medline and OldMedline, CINAHL, Cochrane Database of Systematic Reviews, UpToDate, MDConsult, JSTOR, Academic Search Complete, Google Scholar, Google Books, Google Web Search, ERIC, SPORTDiscus, and Physical Education Index.
- Dates searched for publications from 1960 to the present (October, 2013)
- Keywords used included:
 - Drowning, Drown, Drowned, Near drowning,
 - Swim, swimming, swam
 - Eat, eating, ate
 - Meal, nutrients, nutrition,
 - Digest, digested, digestion

- Gut, gut action
- Exercise
- Water, aquatics
- Human studies, in English

LEVEL OF EVIDENCE

For each article/source from step 1, assigned a level of evidence—based on study design and methodology.

Level of Evidence	Definitions (See manuscript for full details)
Level 1	Randomized clinical trials or meta-analyses of multiple clinical trials with substantial treatment effects
Level 2	Randomized clinical trials with smaller or less significant treatment effects
Level 3	Prospective, controlled, non-randomized, cohort studies
Level 4	Historic, non-randomized, cohort or case-control studies
Level 5	Case series: patients compiled in serial fashion, lacking a control group
Level 6	Animal studies or mechanical model studies
Level 7	Extrapolations from existing data collected for other purposes, theoretical analyses
Level 8	Rational conjecture (common sense); common practices accepted before evidence-based guidelines

REFERENCES

Published, refereed journal articles
(LOE)

Quan's comments/Level of Evidence

1. Singer RN, Neeves RE. <i>Effect of food consumption on 200-yard freestyle swim performance</i> . Res Q. 1968;39(2):355-60.	No abdominal pain at ½, 1, 2 hours post eating large meal pre competition in swimmers. LOE 3
2. Asprey G, Alley L, and Tuttle W. <i>Effect of eating at various times on subsequent performances in the one-mile freestyle swim</i> . Res Q. 1968;39(2):231-4.	No abdominal pain/cramp in fed and non-fed swimmers. LOE 3
3. Ball J. <i>Effect of eating at various times on subsequent performances in swimming</i> .	No cramps/pain/difference in swimming 1,2, etc hours after eating. LOE 3
4. Brouns F., Beckers E. <i>Is the gut an athletic organ? Digestion, absorption and exercise</i> . Sports Med. 1993;15(4):242-57	Review of lit: Pre-exercise ingestion of foods rich in dietary fibre, fat and protein, as well as strongly hypertonic drinks, may cause upper GI symptoms such as stomach ache, vomiting and reflux or heartburn abd pain but not distress with exercise.
5. Kibayashi K., Shimada R., Nakao K. <i>Frequent detection of stomach contents in accidental drowning</i> . Med Sci Law 2011;51(3):161-3.	Describes high frequency of food contents in drowning victims which is higher than frequency in suicide victims. While this is only study attempting to evaluate relationship between eating and

<p>6. Pfeiffer B., Stellingwerff T., Hodgson AB, Randell R., Pottgen K. Res P. Jeukendrup AE. <i>Nutritional intake and gastrointestinal problems during competitive endurance events</i>. <i>Medicine & Science in Sports & Exercise</i>. 2012; 44(2):344-51.</p> <p>7. Morton DP, Richards D, Callister R. Epidemiology of exercise-related transient abdominal pain at the Sydney City to Surf community run. <i>J Sci Med Sport</i>. 2005; Jun;8(2):152-62.</p>	<p>drowning death, as a case: control study, its methodology is very problematic. By using suicides as controls, it has chosen a population that is biased, one that by definition of depression is probably least likely to eat and therefore not representative of the general population. What they have shown is that drowning victims are more likely to eat than suicides but not that the eating caused the drowning. LOE 4</p> <p>High carb intake increases nausea and flatulence but improves performance in marathon runners. LOE 5</p> <p>Questionnaire survey, subject to recall bias. Describes characteristics of abd pain in runners in a competition setting. Abd pain more common in runners than walkers and more likely after a large meal. Abdominal pain is a problem in competitive swimmers. Exercise associated transient abdominal pain (ETAP) LOE 5</p>
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Key organisations' drowning prevention/water safety recommendations did not describe dangers of nor prescribe any warnings regarding eating and swimming/water activities:

- American Academy of Pediatrics- Committee on Injury Violence, and Poison Prevention, Weiss J. Prevention of Drowning. *Pediatrics*. 2010;126(1):e253-262
- CDC - Injury - Water-Related Injuries Fact Sheet. Available at: Accessed December 18, 2013) <http://www.cdc.gov/HomeandRecreationalSafety/Water-Safety/waterinjuries-factsheet.html>
- World Health Organization - WHO | Drowning. Available at: <http://www.who.int/mediacentre/factsheets/fs347/en/> [Accessed December 18, 2013].

Websites [Accessed December 5, 2013].

Searched for “swimming after eating”, “eating before swimming”, “eating and swimming”, “eating and drowning”

<http://www.snopes.com/oldwives/hourwait.asp> Swimming myth

www.dukehealth.org: Myth or Fact: Wait 30 minutes after eating to go swimming

<http://www.medicinenet.com/script/main/art.asp?articlekey=47368> Debunking summer health myths

<http://health.discovery.com/videos/dr-know-swimming-after-eating.html> Discovery Health Video

<http://health.howstuffworks.com/mental-health/human-nature/health-myths/swimming-after-eating.htm>. Discovery Health. DO YOU REALLY HAVE TO WAIT AN HOUR AFTER BEFORE SWIMMING? Old wives tale

http://www.nytimes.com/2005/06/28/health/28real.html?_r=0 REALLY?
 The Claim: Never Swim After Eating Top of Form

ANAHAD O'CONNOR Published: June 28, 2005. The food to avoid is alcohol.

<http://www.mayoclinic.com/health/childrens-health/CC00003>. Children's swimming: Keep health risks at bay. "It's OK to swim immediately after a light meal or snack. If your child feels lethargic after eating a heavy meal, encourage him or her to take a break before swimming."

<http://www.bbc.com/future/story/20130401-can-you-swim-an-hour-just-after-eating?>
 BBC. Medical Myths Should you wait an hour after eating until swimming?

SUMMARY

There is little published scientific literature or even general information on the effects of eating before swimming. The two swim studies, both conducted in the 1960's, showed no effect on swimming performance and minimal side effects at several different time intervals after a meal. No reported cases of eating before swimming causing or contributing to fatal or nonfatal drowning are reported in any of the literature searched.

Research generally shows that food consumption prior and during athletic endeavors improves performance. However, there is a small body of research on a condition called ETAP, exercise related transient abdominal pain which is mostly reported among runners and is not debilitating nor severe. Evaluation of liquid and food intake shows that the condition may occur more frequently in runners who consumed high carbohydrate drinks. No significant symptoms were reported in any of the studies.

No research, major medical or water safety organizations make any recommendations to wait before swimming after eating.

RECOMMENDATIONS

Food intake restrictions prior to swimming are unfounded. Class II Recommendation

Class of Recommendation selected from these summary definitions.

CLASS	CLINICAL DEFINITION	REQUIRED LEVEL OF EVIDENCE
Class I <i>Definitely recommended.</i> Definitive, excellent evidence provides support.	<ul style="list-style-type: none"> • Always acceptable, safe • Definitely useful • Proven in both efficacy & effectiveness • Must be used in the intended manner for proper clinical indications. 	<ul style="list-style-type: none"> • One or more Level 1 studies are present (with rare exceptions) • Study results consistently positive and compelling
Class II: <i>Acceptable and useful</i>	<ul style="list-style-type: none"> • Safe, acceptable • Clinically useful • Not yet confirmed definitively 	<ul style="list-style-type: none"> • Most evidence is positive • Level 1 studies are absent, or inconsistent, or lack power • No evidence of harm
<ul style="list-style-type: none"> • Class IIa: <i>Acceptable and useful</i> Good evidence provides	<ul style="list-style-type: none"> • Safe, acceptable • Clinically useful • Considered treatments of 	<ul style="list-style-type: none"> • Generally higher levels of evidence • Results are consistently positive

support	choice	
<ul style="list-style-type: none"> • Class IIb: <i>Acceptable and useful</i> Fair evidence provides support	<ul style="list-style-type: none"> • Safe, acceptable • Clinically useful • Considered optional or alternative treatments 	<ul style="list-style-type: none"> • Generally lower or intermediate levels of evidence • Generally, but not consistently, positive results
Class III <i>Not acceptable, not useful, may be harmful</i>	<ul style="list-style-type: none"> • Unacceptable • Not useful clinically • May be harmful. 	<ul style="list-style-type: none"> • No positive high level data • Some studies suggest or confirm harm.
Indeterminate	<ul style="list-style-type: none"> • Research just getting started. • Continuing area of research • No recommendations until further research 	<ul style="list-style-type: none"> • Minimal evidence is available • Higher studies in progress • Results inconsistent, contradictory • Results not compelling

POTENTIAL CONFLICT OF INTEREST STATEMENT:

The author has no conflict of interest with the stakeholder industry, technology, persons or organisations that are identified and/or impacted by the position statement.

APPROVAL

Position Statement approved by the ILS Board of Directors on 16/09/2014.