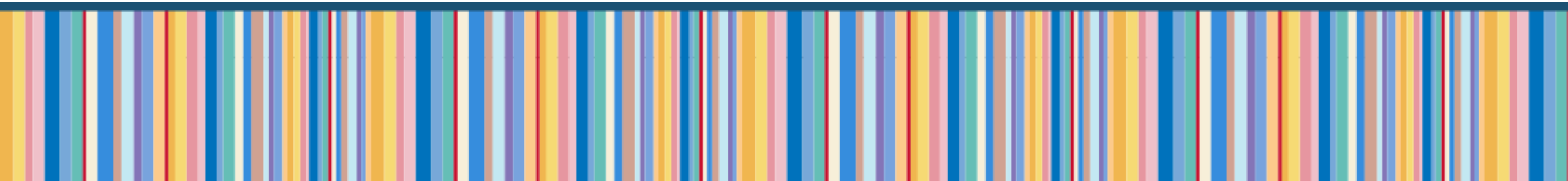


What is Appropriate to Use on Newborn Skin?

Ingredient Science, Facts & Guidance for Midwives



Welcome and Introductions

Carol Bedwell, PhD

Centre for Childbirth, Women's and Newborn Health

Liverpool School of Tropical Medicine



Agenda

Welcome & Introduction	Moderator Carol Bedwell, PhD
Ingredient Science – Facts & Guidance	James Kennedy, MA
Panel Discussion Question and Answers Session	Carol Bedwell, PhD
Closing Remarks Session Evaluation and Adjournment	Carol Bedwell, PhD

Learning Objectives - Enhance Your Understanding of...

1. The unique differences of Infant skin which continues to mature long after birth and how those difference have implications for products used in skin care
2. How to cut through the confusion about ingredients, myths vs. facts about what makes an ingredient “good” or “bad”, and how to read and understand product labels
3. What you can tell parents to help guide their decisions for product choices, based on the evidence

Disclosures

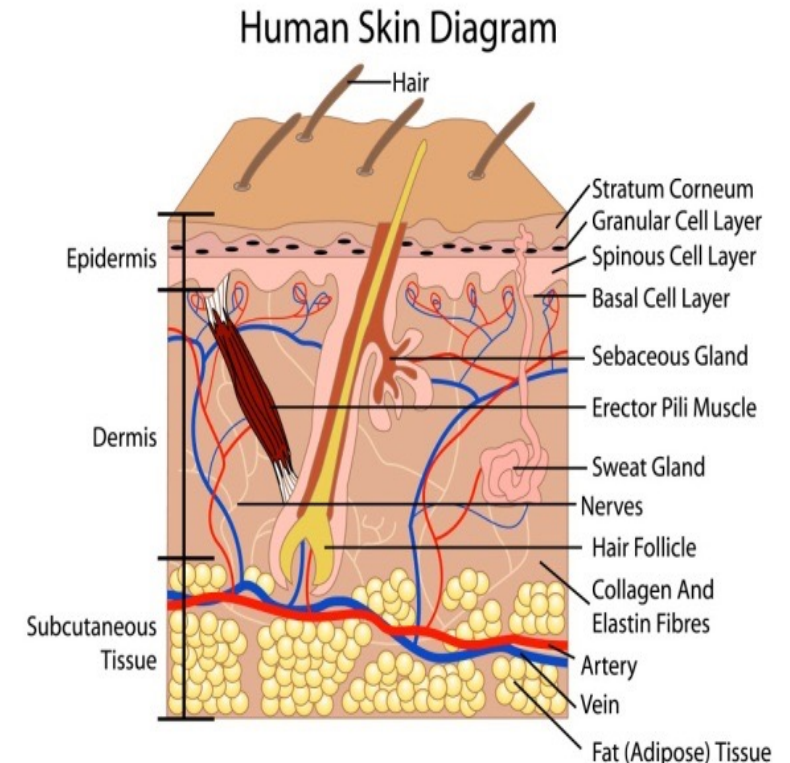
- The opinions expressed by the speakers are their own and not that of their employers or the program sponsor
- Carol Bedwell, PhD and James Kennedy, MA have participated in past as speakers for educational scientific programs sponsored by the Research & Development group at Johnson & Johnson Consumer Inc.
- This presentation and speakers are sponsored by the Research & Development group at Johnson & Johnson Consumer Inc.

Infant Skin is Unique and Still Developing

- Infant skin is uniquely different than adult skin
- It continues to develop and mature through first years
- Infant skin differences have implications for skin care routines and the products use

Skin Function

- Natural protective barrier from
 - Physical injury
 - Pathogenic microbes
 - Chemical agents
 - Extreme temperatures
- Starts process for making Vitamin D to help body absorb calcium and maintain phosphorous for healthy bones
- Sensory perception: temperature, pressure, touch, pain
- Temperature regulation of the body
- Helps to restrict fluid and water loss



1. Irving V: Caring for and protecting the skin of pre-term neonates. *J Wound Care* 2001, 10:253-6.

2. Nikolovski J, Stamatias GN, Kollias N, Wiegand BC: Barrier function and water-holding and transport properties of infant stratum corneum are different from adult and continue to develop through the first year of life. *J Invest Dermatol* 2008, 128:1728-36.

3. <https://www.health.harvard.edu/staying-healthy/time-for-more-vitamin-d>

Parents Need Help to Sort Through What's Best

- What makes a skin care product acceptable is not always clear cut
 - Evidence and guidelines can vary
 - Misinformation can lead to confusion
 - Parents struggle to know what's best
- Women often turn to midwives for advice, but the limited evidence means midwives are often unsure themselves
- This session aims to help clarify some points of science that midwives can use to help guide discussions with women

Ingredient Science Facts & Guidance

James Kennedy, MA

Natural Sciences

Monash College, Australia



Disclosures

- The opinions expressed by James Kennedy, MA are his own and not that of his employer or the program sponsor
- James Kennedy, MA has participated in past as speaker for educational scientific programs sponsored by the Research & Development group at Johnson & Johnson Consumer Inc.
- This presentation and speakers are sponsored by the Research & Development group at Johnson & Johnson Consumer Inc.

About James

- British citizen living in Australia
- B.A and M.A. in Natural Sciences, University of Cambridge, U.K. (2010)

Dose Makes The Difference



The Deadly Facts (Myths) About Water

FACT!

*Water can be chemically synthesized
by burning rocket fuel!!!*

FACT!

*Over consumption can cause
excessive sweating, urination,
and even death!!!*



FACT!

*Water one of the primary ingredients
In herbicides and pesticides!!!*

FACT!

*Water is the leading
cause of drowning!!!*

An All Natural Banana



INGREDIENTS: WATER (75%), **SUGARS (12%)** (GLUCOSE (48%), FRUCTOSE (40%), SUCROSE (2%), MALTOSE (<1%)), STARCH (5%), FIBRE E460 (3%), **AMINO ACIDS (<1%)** (GLUTAMIC ACID (19%), ASPARTIC ACID (16%), HISTIDINE (11%), LEUCINE (7%), LYSINE (5%), PHENYLALANINE (4%), ARGININE (4%), VALINE (4%), ALANINE (4%), SERINE (4%), GLYCINE (3%), THREONINE (3%), ISOLEUCINE (3%), PROLINE (3%), TRYPTOPHAN (1%), CYSTINE (1%), TYROSINE (1%), METHIONINE (1%)), **FATTY ACIDS (<1%)** (PALMITIC ACID (30%), OMEGA-6 FATTY ACID: LINOLEIC ACID (14%), OMEGA-3 FATTY ACID: LINOLENIC ACID (8%), OLEIC ACID (7%), PALMITOLEIC ACID (3%), STEARIC ACID (2%), LAURIC ACID (1%), MYRISTIC ACID (1%), CAPRIC ACID (<1%)), ASH (<1%), PHYTOSTEROLS, E515, OXALIC ACID, E300, E306 (TOCOPHEROL), PHYLLOQUINONE, THIAMIN, **COLOURS** (YELLOW-ORANGE E101 (RIBOFLAVIN), YELLOW-BROWN E160a), **FLAVOURS** (3-METHYLBUT-1-YL ETHANOATE, 2-METHYLBUTYL ETHANOATE, 2-METHYLPROPAN-1-OL, 3-METHYLBUTYL-1-OL, 2-HYDROXY-3-METHYL BUTANOATE, 3-METHYLBUTANAL, ETHYL HEXANOATE, ETHYL BUTANOATE, PENTYL ACETATE), 1510, NATURAL RIPENING AGENT (ETHENE GAS).

3-METHYLBUT-1-YL ETHANOATE SIDE EFFECTS

Irritation, dyspnoea, fatigue, and increased pulse, death

LETHAL DOSE: 555 g

2-METHYLPROPAN-1-OL SIDE EFFECTS

Irritation of eyes, skin and throat; headache, drowsiness and skin cracking

LETHAL DOSE: 195 g

PENTYL ACETATE SIDE EFFECTS

Cough, dizziness, drowsiness, headache, sore throat

LETHAL DOSE: 420 g

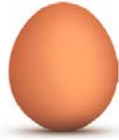
All Natural Fruits

ALL-NATURAL BLUEBERRIES



INGREDIENTS: AQUA (84%), SUGARS (10%) (FRUCTOSE (8%), GLUCOSE (4%), SUCROSE (2%)), FIBRE E460 (2.4%), **AMINO ACIDS** (41%) (GLUTAMIC ACID (2%), ASPARTIC ACID (18%), LEUCINE (17%), ARGONINE (8%), ALANINE (4%), VALINE (4%), GLYCINE (2%), PROLINE (4%), ISOLEUCINE (3%), SERINE (2%), THREONINE (2%), PHENYLALANINE (2%), LYSINE (2%), METHIONINE (2%), TYROSINE (1%), HISTIDINE (1%), CYSTINE (1%), TRYPTOPHAN (1%), **FATTY ACIDS** (41%) (OMEGA-6 FATTY ACID: LINOLEIC ACID (20%), OMEGA-3 FATTY ACID: LINOLENIC ACID (19%), OLEIC ACID (18%), PALMITIC ACID (8%), STEARIC ACID (2%), PALMITOLEIC ACID (1%), ASH (1%), PHYTOSTEROLS: OXALIC ACID, E300, E306 (TOCOPHEROLS), THIAMIN, COLOURS (E153, E163, E163a, E163b, E163c), E160a) **FLAVOURS** (ETHYL ETHANOATE, 3-METHYL BUTYRALDEHYDE, 2-METHYL BUTYRALDEHYDE, BENZYLAL, METHYLBUTYRATE, OCTENE, HEXANAL, DECANAL, 3-CARENE, LIMONENE, STYRENE, NONANE, ETHYL-3-METHYLBUTANOATE, NON-1-ENE, HEXAN-2-ONE, HYDROXYLINALOOL, LINALOOL, TERPINYL ACETATE, CARVOPHYLLENE, ALPHA-TERPINENEOL, ALPHA-TERPINENE, 1,8-CINEOLE, CITRAL, BENZALDEHYDE, METHYL-PARABEN, 1510, E300, E440, E451, and FRESH AIR (E41, E44, E200).

AN ALL-NATURAL EGG



INGREDIENTS: AQUA (75.9%), **AMINO ACIDS** (12.6%) (GLUTAMIC ACID (14%), ASPARTIC ACID (11%), VALINE (9%), ARGONINE (9%), LEUCINE (9%), LYSINE (7%), SERINE (7%), PHENYLALANINE (6%), ALANINE (5%), COLEUCINE (5%), PROLINE (4%), TYROSINE (3%), THREONINE (3%), GLYCINE (2%), HISTIDINE (2%), METHIONINE (2%), CYSTINE (2%), TRYPTOPHAN (1%), **FATTY ACIDS** (8.9%) (OCTADECANOIC ACID (4%), HEXADECANOIC ACID (4%), OLEIC ACID (1%), EICOSAPENTAENOIC ACID (3%), EICOSANOIC ACID (2%), DOCOSEANOIC ACID (1%), TETRADECANOIC ACID (1%), OCTANOIC ACID (1%), DECANOIC ACID (1%), DODECANOIC ACID (1%), TETRADECANOIC ACID (1%), PENTADECANOIC ACID (1%), HEPTADECANOIC ACID (1%), TETRADECANOIC ACID (1%), HEXADECANOIC ACID (1%), EICOSENOIC ACID (1%), DOCOSENOIC ACID (1%), OMEGA-6 FATTY ACID: OCTADECANOIC ACID (12%), OMEGA-3 FATTY ACID: OCTADECATRENOIC ACID (4%), EICOSAPENTAENOIC ACID (EPA) (1%), OMEGA-3 FATTY ACID: DOCOSEXAHENOIC ACID (DHA) (1%), **SUGARS** (8.9%) (GLUCOSE (20%), SUCROSE (15%), FRUCTOSE (15%), LACTOSE (15%), MALTOSE (15%), GALACTOSE (15%)), COLOUR (E160c, E160d, E160e, E160f), **FLAVOURS** (PHENYLACETALDEHYDE, DOOSCA-2-ENAL, HEPTA-2-ENAL, HEXADECANAL, OCTADECANAL, PENTAN-2-ONE, BUTAN-2-ONE, ACETALDEHYDE, FORMALDEHYDE, ACETONE, SMELT, E110), ALSO CONTAINS BENZENE & BENZENE DERIVATIVE, ESTERS, FURANS, SULFUR CONTAINING COMPOUNDS AND TERPENES.

AN ALL-NATURAL PASSIONFRUIT



INGREDIENTS: AQUA (72.9%), SUGARS (11.2%) (FRUCTOSE (4%), GLUCOSE (4%), MALTOSE (2%), GALACTOSE (2%), SUCROSE (2%)), FIBRE E460 (1.4%), **AMINO ACIDS** (11%) (GLUTAMIC ACID (17%), ASPARTIC ACID (12%), ARGONINE (8%), LYSINE (8%), GLYCINE (8%), LEUCINE (8%), VALINE (5%), THREONINE (5%), ALANINE (5%), SERINE (5%), PHENYLALANINE (4%), PROLINE (4%), TYROSINE (4%), METHIONE (2%), CYSTINE (2%), TRYPTOPHAN (1%), **FATTY ACIDS** (41%) (OMEGA-6 FATTY ACID: OCTADECANOIC ACID (20%), OCTADECANOIC ACID (8%), HEXADECANOIC ACID (8%), OCTADECANOIC ACID (2%), OMEGA-3 FATTY ACID: OCTADECATRENOIC ACID (1%), PRESERVATIVES (E202, E209), COLOURS (E163, E163a, E163b, E163c, E163d, E163e, E163f, E163g, E163h, E163i, E163j, E163k, E163l, E163m, E163n, E163o, E163p, E163q, E163r, E163s, E163t, E163u, E163v, E163w, E163x, E163y, E163z), POLATE, CHOLINE, BETANINE, PHYTOSTEROLS, **FLAVOURS** (41%) (ETHYL BUTANOATE (9.4%), HEXAN-1-OL (9.0%), ALPHA-TERPENEOL (8.0%), BENZALDEHYDE (4.8%), ETHYL BENZOATE (2.0%), 3-METHYL-1-BUTANOL (2.0%), GERANOL (2.4%), METHYL CYCLOPENTAN-1-ENE, BENZOIC ACID (2.1%), LIGULON (1.5%), CYCLOPENTANONE (1.5%), PHENYLETHYL ETHANOATE (1.4%), HEXEN-1-OL (1.2%), TERPENE-4-OL (1.1%), ACETAL, 1,3-DIETHOXYETHANE (1.2%), 3-HYDROXY-2-BUTANONE (1.0%), HEXANOIC ACID (1.5%), OCTANOIC ACID (1.3%), D-GLUCOSYL DIODE (1.1%), 3-METHYL-1-BUTEN-1-OL (1.1%), BENZENE ACETALDEHYDE (1%), FLAVONOIDS UNK. TO PASSIONFRUIT (1%), 2-METHYL-4-PROPYL-1,3-OXAZINANE (1%), MERCAPTOHEXAN-1-OL (1%), SESQUITERPENE, ETHYL-3-METHYLBUTYRATE, ETHANOATE, (S) (S) HEXAN-1-OL (1%), CYSTINE).

AN ALL-NATURAL PEACH



INGREDIENTS: AQUA (88.9%), SUGARS (8.4%) (SUCROSE (48%), GLUCOSE (20%), FRUCTOSE (15%), MALTOSE (11%), GALACTOSE (11%), FIBRE E460 (1.5%), **FATTY ACIDS** (41%) (OMEGA-6 FATTY ACID: OCTADECANOIC ACID (28%), OCTADECANOIC ACID (22%), HEXADECANOIC ACID (8%), OCTADECANOIC ACID (1%), HEXADECANOIC ACID (1%), OMEGA-3 FATTY ACID: OCTADECATRENOIC ACID (1%), **AMINO ACIDS** (41%) (ASPARTIC ACID (54%), GLUTAMIC ACID (7%), LYSINE (4%), SERINE (4%), ALANINE (4%), LEUCINE (3%), GLYCINE (3%), VALINE (3%), THREONINE (2%), ARGONINE (2%), HISTIDINE (2%), PROLINE (2%), CYSTINE (2%), ISOLEUCINE (2%), TYROSINE (2%), PHENYLALANINE (2%), TRYPTOPHAN (2%), METHIONINE (2%), COLOURS (E160a, E161b, E161c), E300, E307, **FLAVOURS** (BENZALDEHYDE, LINALOOL, GAMMA- AND DELTA-DECALACTONE, DELTA- AND GAMMA-OCTALACTONE, 6-PENTYL-ALPHA-PYRONE, HEXADECANOIC ACID, (Z)-3-HEXEN-1-YL ACETATE, ETHYL BUTANOATE, (Z)-3-HEXANAL, HEXANAL, (E)-2-4-DECADIENAL, BENZALDEHYDE, DELTA- AND GAMMA-DODECALACTONE, GAMMA-JASMONOLACTONE, TERPINOLENE, 4-DECANOLIDE, BETA-DAMASCENONE, CARVOMENTHOL, ALPHA-TERPENEOL, 3-METHYL-BUTYL ACETATE), CHOLINE, PANTOTHENIC ACID.

AN ALL-NATURAL KIWI



INGREDIENTS: AQUA (83.1%), SUGARS (9.0%) (FRUCTOSE (48%), GLUCOSE (48%), MALTOSE (2%), GALACTOSE (2%), SUCROSE (2%)), FIBRE E460 (3.0%), ASH, **AMINO ACIDS** (11%) (GLUTAMIC ACID (17%), ASPARTIC ACID (12%), ARGONINE (8%), LYSINE (8%), GLYCINE (8%), LEUCINE (8%), VALINE (5%), ISOLEUCINE (5%), ALANINE (5%), SERINE (5%), PHENYLALANINE (4%), PROLINE (4%), THREONINE (4%), TYROSINE (1%), METHIONINE (1%), ASH (0.4%), **FATTY ACIDS** (46.3%) (PALMITIC ACID (24.3%), OMEGA-6 FATTY ACID: LINOLENIC ACID (19.1%), OLEIC ACID (7.4%), STEARIC ACID (1.5%), MYRISTIC ACID (0.4%), PALMITOLEIC ACID (0.4%), PHYTOSTEROLS: ETHYL-3-METHYLBUTANOATE, NON-1-ENE, HEXAN-2-ONE, HYDROXYLINALOOL, LINALOOL, TERPINYL ACETATE, CARVOPHYLLENE, ALPHA-TERPENEOL, ALPHA-TERPENE, 1,8-CINEOLE, CITRAL, BENZALDEHYDE, METHYL-PARABEN, 1510, E300, E440, E451, and FRESH AIR (E41, E44, E200).

AN ALL-NATURAL LEMON



INGREDIENTS: WATER (87.4%), FIBRE E460 (4.7%), SUGARS (2.4%) (GLUCOSE (8%), FRUCTOSE (8%), SUCROSE (2%)), **AMINO ACIDS** (12%) (GLUTAMIC ACID (19%), ASPARTIC ACID (16%), HISTIDINE (11%), LEUCINE (7%), LYSINE (9%), PHENYLALANINE (4%), ARGONINE (4%), VALINE (4%), ALANINE (4%), SERINE (4%), GLYCINE (3%), THREONINE (3%), ISOLEUCINE (3%), PROLINE (3%), TRYPTOPHAN (1%), CYSTINE (1%), TYROSINE (1%), METHIONINE (1%), ASH (0.4%), **FATTY ACIDS** (8.9%) (OMEGA-6 FATTY ACID: LINOLEIC ACID (46.3%), PALMITIC ACID (24.3%), OMEGA-3 FATTY ACID: LINOLENIC ACID (19.1%), OLEIC ACID (7.4%), STEARIC ACID (1.5%), MYRISTIC ACID (0.4%), PALMITOLEIC ACID (0.4%), PHYTOSTEROLS: ETHYL-3-METHYLBUTANOATE, NON-1-ENE, HEXAN-2-ONE, HYDROXYLINALOOL, LINALOOL, TERPINYL ACETATE, CARVOPHYLLENE, ALPHA-TERPENEOL, ALPHA-TERPENE, 1,8-CINEOLE, CITRAL, BENZALDEHYDE, METHYL-PARABEN, 1510, E300, E440, E451, and FRESH AIR (E41, E44, E200).

ALL-NATURAL PINEAPPLE



INGREDIENTS: AQUA (86.0%), SUGARS (9.0%) (SUCROSE (81%), FRUCTOSE (22%), GLUCOSE (18%)), FIBRE E460 (3.3%), **AMINO ACIDS** (41%) (ASPARTIC ACID (22%), GLUTAMIC ACID (15%), SERINE (7%), ALANINE (5%), LEUCINE (6%), GLYCINE (5%), VALINE (4%), ARGONINE (4%), THREONINE (4%), TYROSINE (4%), PHENYLALANINE (4%), ISOLEUCINE (4%), CYSTINE (3%), PROLINE (2%), METHIONINE (2%), HISTIDINE (2%), TRYPTOPHAN (1%), ASH (1%), **FATTY ACIDS** (41%) (OMEGA-6 FATTY ACID: OCTADECANOIC ACID (28%), OCTADECANOIC ACID (8%), HEXADECANOIC ACID (8%), OCTADECANOIC ACID (2%), OMEGA-3 FATTY ACID: OCTADECATRENOIC ACID (1%), PRESERVATIVES (E202, E209), COLOURS (E160a, E160b, E160c, E160d, E160e, E160f, E160g, E160h, E160i, E160j, E160k, E160l, E160m, E160n, E160o, E160p, E160q, E160r, E160s, E160t, E160u, E160v, E160w, E160x, E160y, E160z), POLATE, CHOLINE, BETANINE, PHYTOSTEROLS, ASH, **FLAVOURS** (41%) (ETHYL BUTANOATE (9.4%), HEXAN-1-OL (9.0%), ALPHA-TERPENEOL (8.0%), BENZALDEHYDE (4.8%), ETHYL BENZOATE (2.0%), 3-METHYL-1-BUTANOL (2.0%), GERANOL (2.4%), METHYL CYCLOPENTAN-1-ENE, BENZOIC ACID (2.1%), LIGULON (1.5%), CYCLOPENTANONE (1.5%), PHENYLETHYL ETHANOATE (1.4%), HEXEN-1-OL (1.2%), TERPENE-4-OL (1.1%), ACETAL, 1,3-DIETHOXYETHANE (1.2%), 3-HYDROXY-2-BUTANONE (1.0%), HEXANOIC ACID (1.5%), OCTANOIC ACID (1.3%), D-GLUCOSYL DIODE (1.1%), 3-METHYL-1-BUTEN-1-OL (1.1%), BENZENE ACETALDEHYDE (1%), FLAVONOIDS UNK. TO PASSIONFRUIT (1%), 2-METHYL-4-PROPYL-1,3-OXAZINANE (1%), MERCAPTOHEXAN-1-OL (1%), SESQUITERPENE, ETHYL-3-METHYLBUTYRATE, ETHANOATE, (S) (S) HEXAN-1-OL (1%), CYSTINE).

AN ALL-NATURAL STRAWBERRY



INGREDIENTS: AQUA (90.9%), SUGARS (4.9%) (FRUCTOSE (50%), GLUCOSE (41%), SUCROSE (9%)), FIBRE E460 (2.0%), ASH, **FATTY ACIDS** (41%) (OMEGA-6 FATTY ACID: OCTADECANOIC ACID (28%), OCTADECANOIC ACID (22%), HEXADECANOIC ACID (8%), OCTADECANOIC ACID (1%), HEXADECANOIC ACID (1%), OMEGA-3 FATTY ACID: OCTADECATRENOIC ACID (1%), **AMINO ACIDS** (41%) (ASPARTIC ACID (20%), GLUTAMIC ACID (17%), LEUCINE (17%), ARGONINE (8%), LYSINE (8%), GLYCINE (8%), VALINE (5%), THREONINE (5%), ALANINE (5%), SERINE (5%), PHENYLALANINE (4%), PROLINE (4%), TYROSINE (4%), METHIONINE (2%), CYSTINE (2%), TRYPTOPHAN (1%), **PRESERVATIVES** (E202, E209) **COLOURS** (E160a, E161b, E161c, E140, E164, E164a, E164b, E161b, E161c, E300, E307, POLATE, CHOLINE, BETANINE, PHYTOSTEROLS, **FLAVOURS** (2,5-DIMETHYL-4-HYDROXY-2H-FURAN-3-ONE, 2,5-DIMETHYL-4-METHOXY-2H-FURAN-3-ONE, GAMMA-DECALACTONE, GAMMA-DODECALACTONE, 2-FURFURAL, 3-HYDROXY-2-BUTANONE, 1-METHOXY-2-ETHANOL, 1-ETHANOL, NEROLIDOL, E1510, HEXANOL, OCTANOL, METHYL BUTANOATE, ETHYL BUTANOATE, METHYL HEXANOATE, ETHYL HEXANOATE, ETHYL ETHANOATE, NETHYL ETHANOATE, ETHYL OCTANOATE, OCTYL-2-METHYL BUTANOATE, OCTYL HEXANOATE, OCTYL BUTANOATE, DECYL ETHANOATE, METHANETHOYL, ETHYL-3-METHYLBUTANOATE, GERANOL, E210, FARNESYL ACETATE, MESURANNE, METHYL ANTHRANILATE, GAMMA-DECALACTONE, METHOXY, DIMETHOXYMETHANE, 1-BUTOXY-1-ETHOXYETHANE), 2-(4-HYDROXYPHENYL)ETHYL BETA-D-GLUCOPYRANOSIDE.

Chemicals Are Not Good Or Bad

- Everything on Earth is a chemical or a mixture of chemicals
- A chemical being “present” doesn’t automatically make it harmful
- “Only the dose makes the poison.”*



Apple Seeds Contain Amygdalin**

*"All things are poison and nothing is without poison, only the dose permits something not to be poisonous." Paracelsus, 16th century Swiss Chemist, Acknowledged as Father of Toxicology

**Amygdalin is a chemical combination of glucose, benzaldehyde and cyanide from which the cyanide can be released.

Question 1

The lethal dosage (LD_{50}) for adult ingestion of water in one sitting is:

- A. 2 liters
- B. 6 liters ★
- C. 10 liters
- D. 21 liters

The Dose Makes The Difference



The Dose Makes The Difference



Safe dose
(adult, ingested)
500 mL of water



Lethal dose
(adult, ingested)
6 L of water*

*If ingested all at once.

Vitamin D Has An Ideal Dose



Science Museum Group
Attribution 4.0 International (CC BY 4.0)

Too little

Weakened bones
(e.g. rickets /
osteomalacia)

Just right

Optimal calcium
absorption
Strong bones

Too much

Polyuria, polydipsia,
weakness, insomnia,
nervousness, pruritus and
ultimately renal failure

Iron Has An Ideal Dose

Too little

Slow weight gain, pale skin, poor appetite & irritable

Just right

Healthy baby

Too much

Severe vomiting, diarrhea, abdominal pain

Understanding...



Clinically proven
mild

Safety



Great moisturiser

Efficacy



Derived from
coconuts

Personal preferences

Understanding...



Clinically proven
mild

Safety is **most
important**



Great
moisturiser

Efficacy is **next**



Derived
from
coconuts

Then
Personal preferences

Part 1 Summary

1. The Dose Makes the Difference! Almost everything has an ideal dose
2. The most important attributes in a product are:
 - Safety
 - then Efficacy
 - then Personal Preferences

Formulation Debate 1: Is Natural Always Best?



Question 2

Natural ingredients are:

- A. Always safer
- B. Sometimes safer
- C. It depends ★




WATER
GLUCOSE
FRUCTOSE
SUCROSE
MALTOSE
STARCH

ARGININE
VALINE
ALANINE
SERINE
GLYCINE
THREONINE
ISOLEUCINE

OMEGA-6 FATTY ACID
LINOLEIC ACID
OMEGA-3 FATTY ACID
LINOLENIC ACID
OLEIC ACID
PALMITOLEIC ACID
STEARIC ACID
LAURIC ACID




TOXIC AT 1000 mg/Kg



8kg

6.2% SUGAR

660mm



80g **55mm** **1.9% SUGAR**



"CHEMICAL FREE"

"DETOX"



Many “Natural” Things Are Artificial



Many “Natural” Things Are Artificial



Cupcake



Natural
Cupcake

Assumptions*

Non-GMO

Organic

Safe

Low-calorie

Sweeter-tasting

More nutritious

Smaller carbon footprint

Free from pesticides

*Some people automatically assume

Question 3

What was the diameter of a wild watermelon from 3000 B.C.?

- A. The size of a blueberry
- B. The size of a grape ★
- C. The size of an orange
- D. The same size as today (50 cm)



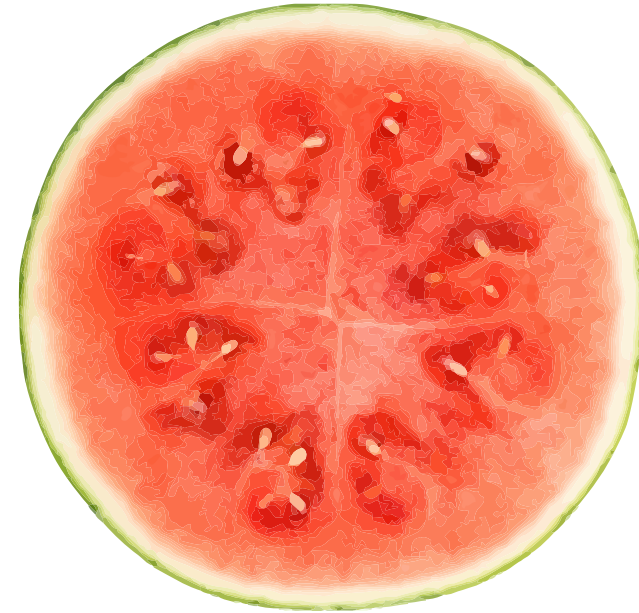
Detail of Giovanni Stanchi's "Watermelons, peaches, pears and other fruit in a landscape" (1645–72), oil on canvas from [Christie's](#)

Natural vs Not Natural



Natural

Hard, not sweet and
5cm diameter



Not Natural

Sweeter, juicier and
1000 times heavier

Natural vs Not Natural



Natural

Sour, earthy, hard
25mm diameter



Not Natural

Sweeter, juicier
and 64 times
heavier

Natural vs Not Natural



Natural

5 kernels per ear
Difficult to eat



Not Natural

1000 times heavier
3.5 times sweeter

Plants Produce Chemical Defenses



Plants Contain Powerful Chemical Defenses That Can Be Harmful... Depending On The Dose



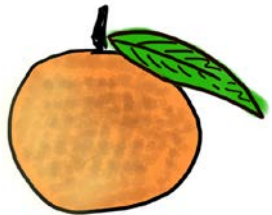
Apricot

Oleic acid – sensitises skin



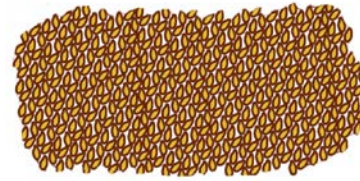
Calendula

Limonene – causes allergies



Mandarin

Limonene – causes allergies



Sesame seeds

Sesamol - carcinogen



Chamomile

Coumarin & farnesol – skin allergens



Copaiba

Geraniol – skin allergen

Are These Ingredients Really Safe For Infant Skin?



TEA TREE ESSENTIAL OIL

1,8-Cineole, Aromadendrene, Bicyclogermacrene, Calamenene, Camphene, cis-3-Hexen-1-ol, cis-3-Hexenyl acetate, cis-Sabinene hydrate, erpinen-4-ol, Globulol, Ledol, Limonene, Linalool, Methyl eugenol, Myrcene, p-Cymene, p-Cymenene, p-Menth-2-en-1-ol, Piperitol, Sabinene, Spathulenol, Terpinen-4-ol, Terpinolene, trans-Sabinene hydrate, Viridiflorene (ledene), Viridiflorol, α -Eudesmol, α -Gurjunene, α -Humulene, α -Phellandrene, α -Pinene, α -Terpinene, α -Terpineol, α -Thujene, β -Caryophyllene, β -Phellandrene, β -Pinene, γ -Muurolene, γ -Terpinene, δ -Cadinene



ORANGE ESSENTIAL OIL

α -pinene, myrcene, D-limonene, linalool, citronellal, decanal, neral, geranial, perillaldehyde, docecinal, β -elemene, cyclohexane, β -caryophyllene, β -copaene, β -farnesene, valencene, β -sinensal, , geranyl acetate, α -sinensal, humulene, sabinene, β -myrcene, citral, 3,7-dimethyloctan-3-ol, (1R)-2,6,6-trimethylbicyclohept-2-ene, octanol, 3,7-dimethyl-1,6-oktadien-3-ol, 1,3,8-p-mentatriene, terpinene-4-ol, α -terpineol, δ -3-Carene, p-Simene, 4-(1-methylethyl)-1-cyclohexan-1-carboxaldehyde, γ -elemene, nonanal

BLUEBERRY INGREDIENTS

Aqua
Sugars
Fructose, Glucose, Sucrose, Fibre E460
Amino Acids
Glutamic Acid, Aspartic Acid, Leucine, Arginine,
Alanine, Valine, Glycine, Proline, Isoleucine, Serine,
Threonine, Phenylalanine, Lysine, Methionine, Tyrosine,
Histidine, Cystine, Tryptophan
Fatty Acids
Omega-6 Fatty Acid: Linoleic Acid, Omega-3
Fatty Acid: Linolenic Acid, Oleic Acid, Palmitic Acid,
Stearic Acid, Palmitoleic Acid, Ash, Phytosterols,
Oxalic Acid, E300, E306, (Tocopherol), Thiamin
Colours
E163a, E163b, E163e, E163f, E160a
Flavours
Ethyl Ethanoate, 3-Methyl Butyraldehyde,
2-Methyl Butyraldehyde, Pentanal, Methylbutyrate,
Octene, Hexanal, Decanal, 3-Carene, Limonene,
Styrene, Nonane, Ethyl-3-Methylbutanoate,
Non-1-Ene, Hexan-2-One, Hydroxylinalool, Linalool,
Terpinyl, Acetate, Caryophyllene, Alpha-Terpineol,
Alphaterpinene, 1,8-Cineole, Citral, Benzaldehyde,
Methylparaben, 1510, E300, E440, E421 &
Fresh Air (E941)

but just because an ingredient's name is difficult to pronounce, doesn't mean it's bad for you.



Apple Seeds
Contain Amygdalin
~0.6g/kg of seeds



Pears
Contains Formaldehyde
~0.06g/kg



Potatoes
Contains Solanin
~0.2g/kg

All these fruit and vegetables contain natural chemicals that are toxic to humans, but far below the harmful dose.

Chemical  **Free**

This is simply impossible,
everything is made of chemicals,


Natural

“having had a minimum of processing
or preservative treatment”

Formulation Debate 2: Are Preservatives Always Necessary?



Question 4

Which statement regarding preservatives is correct?

A. Always use preservative-free baby products

B. Preservatives can help protect baby's skin ★

C. The more preservatives, the better

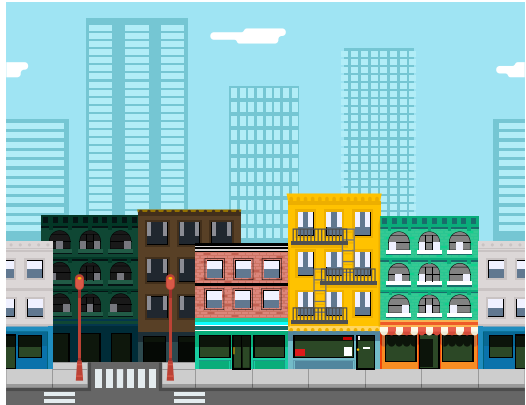
When Preservatives Are Essential

If...

- It contains water &
- It's not single-use

...then it needs a preservative!

Preservatives Are Like Police



Too Much Crime



Just Right!



Too Many Restrictions

Products Without Preservatives Can Be Dangerous To Baby



* Real images, real products.

Professional vs Homemade Skin Care Products

Professional

Pure
High quality
Safe, controlled doses
Difficult to manufacture

Homemade

Variable purity
Variable quality
Where are the preservatives?
Easy to make at home

Formulation Debate 3: Why Do They Add Fragrances To Baby Products?



Question 5

Which product is usually best for baby?

- A. Free from fragrance
- B. Fragrance and product formulated for and safety tested for baby ★
- C. Contains an all-natural fragrance
- D. Pure essential oil

clean



de-stress



alert



Fragrances Aren't All Created Equally!



ESSENTIAL OIL
(CONTAINS
ALLERGENS)



FRAGRANCE BLEND
(CONTAINS
ALLERGENS)



FRAGRANCE BLEND
(ALLERGEN-FREE)

Fragrances Aren't All Created Equally!

Free from 26 known fragrance allergens

1. Alpha isomethylionone
2. Amyl cinnamal (Jasmonal A)
3. Amylcinnamyl alcohol
4. Anisyl alcohol
5. Benzyl alcohol
6. Benzyl benzoate
7. Benzyl cinnamate
8. Benzyl salicylate
9. Butylphenyl methylpropional (Lilial)
10. Cinnamal
11. Cinnamyl alcohol
12. Citral
13. Citronellol
14. Coumarin
15. Eugenol
16. Farnesol
17. Geraniol
18. Hexyl cinnamal (Jasmonal h)
19. Hydroxycitronellal
20. Hydroxyisohexyl 3-cyclohexene carboxaldehyde (Lyral)
21. Isoeugenol
22. Limonene
23. Linalool
24. Methyl 2-octynoate
25. Evernia furfuracea (Treemoss) extract
26. Evernia prunastri (Oakmoss) extract



**FRAGRANCE BLEND
(ALLERGEN-FREE)**

Part 2 Summary

1. Natural ingredients vary a lot — some are beneficial, some are harmful (and it depends on the dose!)
2. Preservatives can help protect baby's delicate skin from contaminated products
3. The right fragrances can be good for baby but should be allergen-free

Reading Labels



Understanding...



Clinically proven
mild

Safety is **most
important**



Great
moisturiser

Efficacy is **next**



Derived
from
coconuts

Then
Personal preferences

Warning Signs

Extraordinary or
irrelevant
claims

“Pure water that
kills germs instantly
on contact”

Contradictions

Front: “fragrance-free”
Back: contains fragrance
ingredients

Language
mistakes

“apply direct;y to
baby’s skin”

10 Popular Baby Skincare Products (based on personal survey of products and labels)

The Label Says	...but survey showed
Tree-free (yes, TREE free)	What's that?
Extra Gentle	It contains fragrance allergens
Delicate skin	It contains fragrance allergens
Sanitiser	No alcohol, no antibacterial ingredients
Baby Wash	Label also says "food grade olive oil"
Chemical-free	Impossible! Contains fragrance allergens

When A Company Produces A New Product Outside Their Area Of Expertise



New Sanitiser Product

Destroys bacteria

Fast acting kills on contact

Sanitises hands and surfaces

100% natural water

Clinically tested

Hello

Hello

What are the ingredients of this product?

It's 100% distilled water.

Has it been "clinically tested" to "destroy bacteria on contact" as the label claims?

We add 0.001% hypochlorite solution.

So it's not 100% distilled water?

Key Messages

- Natural is complicated and not always what you think
- Chemical-free is a marketing myth
- All plants contain naturally-occurring pesticides
- Organic ≠ safe
- Please trust professionals and real experts

Closing Remarks

Carol Bedwell, PhD

Centre for Childbirth, Women's and Newborn Health

Liverpool School of Tropical Medicine



Key Takeaways



1. Infant skin is different from adult skin and requires special care. Therefore, selection of safe and appropriate skin care products is important.
2. There are some important things to remember when it comes to product selection:
 - “Chemical-free” is a myth. All substances are chemicals and whether or not they are safe and effective depends on the dosage.
 - Preservatives have an important role in ensuring safe baby care products.
 - Fragranced baby products should be formulated specifically for babies and tested for safe use.
3. Even non-product experts can learn to understand products much better by carefully reading the labels and claims. Trust the advice of real experts. There are also expert resources online you can depend on.

Asante Sana

Ngiyabonga

Takk

Děkuji

Obrigada

Arigato

ありがとう

شُكْرًا

Dankie

Bedankt

Danke

Thank You !

Tack

Gracias

Xie xie

谢谢

Merci

Ευχαριστώ

e dupe

Terima Kasih

Obrigado

जी शुक्रिया