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(54) Titre : COMPOSITION DE REHYDRATATION
(54) Title: REHYDRATION COMPOSITION

(57) **Abrégé/Abstract:**

The invention relates to a fluid that can be used for preventing or treating hypohydration and the secondary consequences thereof. The fluid comprises one or more carbohydrates and minerals and is further characterized by a low osmolarity. The invention further relates to the use of such a fluid for medical, dietetic and other applications.

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Title: Rehydration composition

The invention relates to a fluid that can be used for preventing or treating hypohydration and the secondary consequences thereof. The invention further relates to the use of such a fluid for medical, dietetic and other applications.

5 Water is the most abundant component of the human and animal body. In vivo, it is the medium in which most biochemical reactions take place. Water homeostasis of the body is therefor of paramount importance. To achieve this, water excretion via the urinary tract and via perspiration (sweating) can be regulated. If a water deficiency arises, the concentration of
10 endogenous compounds such as minerals, glucose, amino acids etc. will rise, which may disturb cellular processes. The total concentration of these compounds, which may be expressed as the osmotic value, can be regulated by selective excretion of some of these compounds from the cell or even from the body.

15 Furthermore, water is an important medium for transportation of components and for the dissipation of heat from the core of the body to the surface. Thermoregulation is extremely important since most biochemical processes in the body are temperature dependent, e.g. due to enzymatic activity. A rise in temperature in the body will mostly be counteracted by
20 sweating and the induction of feelings of fatigue.

Hypohydration can arise acutely e.g. as the result of heavy exercise, such as sports or labor, or due to prolonged exposure to conditions of high temperature and humidity. Hypohydration can also be the result of a too low consumption of water over a prolonged period of time. Such a more chronic
5 form of hypohydration, is often developed by the elderly and certain other groups of people, such as long-distance travelers.

Other causes for developing a chronic form of hypohydration include the use of certain components, e.g. drugs, that have a diuretic action and certain clinical or metabolic disorders, such as cystic fibrosis, spinal cord
10 injuries, coma and diarrhea. Patients may also suffer from hypohydration before or after surgery. Loss of water may lead to a range of secondary complications, in particular loss of water by persons who suffer from a cardiac condition or a kidney dysfunction.

A loss of water of more than 1 % of the body weight is generally
15 considered as leading to water deficiency, wherein biochemical processes in the cells, the functioning of organs and tissues and the performance of the subject may become imparted. A decrease in the water content may result in a decrease in blood plasma volume, which leads to a decrease in the cardiac output (stroke volume). This will cause a reduction in the blood supply to
20 tissues and organs, which in turn has a bad impact on the performance thereof. The reduction of blood volume will also

taurate), about 0.4 % taurine, about 0.032 % caffeine and less than 0.03 % inositol. It further comprises some vitamins, niacin and less than 0.4 % glucuronolactone. Red Bull has a very high energy content, mainly in the form of free sugars (mono- and disaccharides), which may be undesirable for dietary
5 reasons.

“Isostar” is a energy drink comprising 15 g/l maltodextrines and 61 g/l sucrose. It has a relatively high fructose content (fructose to glucose ratio is approximately 0.67. The product further comprises 180 mg/l potassium, 690 mg/l sodium and unknown amounts of calcium, magnesium and several
10 vitamins. Like “Red Bull” Isostar has a high level of free sugars.

A new variety of Isostar comprises 68 g of carbohydrates (66 g sucrose), only one type of metal ion (sodium), some vitamins and an “activator complex”, i.e. a mixture of taurine, caffeine, inositol, tyrosine and phenylalanine. The presence of the latter makes this drink unsuitable for
15 administration to patients suffering from PKU (phenylketonurea).

enhancer (e.g. octacosanol). Such a composition is relatively complex (e.g. containing 30 different components) and expensive to make. A composition with a high energy content is shown to solve dehydration complaints better than a composition with a lower energy content. The abundance of relatively high levels of amino acids and other nitrogen sources are undesirable for many subjects who already have a nitrogen rich diet and for subjects who must take care not to digest too much nitrogen (e.g. patients suffering from kidney disorders). Hence the use of an "ammonia neutralizer" is necessary to avoid metabolic problems.

10 In WO 91/12734 a beverage is disclosed that may be used to replenish water and to provide an energy source. The beverage comprises 3-50 mEq/l electrolytes, 0-8 wt % carbohydrates, up to 14 % of a sweetener and an edible acid. The beverage has an osmolality of 100-270 mOsm/l. The fructose to glucose ratio is very high. Fructose in sports drinks has been reported to be a potential cause of diarrhea. Diarrhea is not only discomforting but also gives rise to extra dehydration.

WO 98/49906 deals with a product for pre-operative use, comprising a daily dose of 5-130 g soluble carbohydrates and 1-30 g glutamin or equivalents. For reasons discussed above, high levels glut

Example 1. Sportsdrink

per serving of 567 ml is included

	glucose	8 g
	fructose	6 g
5	maltodextrin	20 g
	glycerol	1.0 g
	taurine	1.0 g
	betaine	1.0 g
	Guarana	0.27 g, providing 0.1 g caffeine
10	Sodium phosphate	0.5 g
	Sodium chloride	0.1 g
	Potassium citrate	0.3 g

Example 3. Drink to support persons suffering from diarrhea

The following compounds were dissolved in 1 l water:

5	glucose	6 g
	ribose	1 g
	inositol	0.2 g
	fructose	2 g
	maltodextrine	5 g
10	betaine	2 g
	folic acid	100 µg
	Methionine	0.3 g
	sodium	2.1 g
	potassium	0.8 g
15		

