ANATOMICAL, PRESSURE-EVENIZING MATTRESS OVERLAY

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Appl. No.: 12/657,568

Filed: Jan. 21, 2010

Related U.S. Application Data

Provisional application No. 61/206,126, filed on Jan. 28, 2009.

Publication Classification

Int. Cl.
A47C 27/14 (2006.01)
A47C 21/00 (2006.01)

U.S. Cl. 5/740

ABSTRACT

A method and structure for furnishing pressure-evenized, dynamic-reaction anatomical support. The method includes (a) supporting the anatomy with a 100% open cell viscoelastic foam, and (b) thereafter, and within the foam, reacting to both static and dynamic, anatomically-produced foam indentations to expand and contract cell-openness size, whereby deeper/sharper indentations result in greater-size cell-openness. Such reacting includes laterally stretching and flowing regions of the foam adjacent such an indentation. The overlay structure features (1) a dynamic-response core expanse formed of a 100% open-cell, compressible and flowable, polyurethane, viscoelastic foam possessing a compressed, relaxed-state volume and (2) an elastomeric, moisture-resistant coating, load-transmissively, interfacially bonded to the entirety of the outside surface of the core expanse to function as a dynamically-responsive unit with the expanse. The coating possesses a relaxed-state prestressed tension condition which is responsible for the expanse’s compressed condition.
ANATOMICAL, PRESSURE-EVENIZING MATTRESS OVERLAY
CROSS REFERENCE TO RELATED APPLICATION

[0001] This application claims filing-date priority to prior-filed, currently copending U.S. Provisional Patent Application Ser. No. 61/206,126, filed Jan. 28, 2009, for “Anti-Decubitus-Injury Mattress Overlay”. The entire disclosure content of this prior-filed application is hereby incorporated herein by reference.

BACKGROUND AND SUMMARY OF THE INVENTION

[0002] The present invention pertains to a special-purpose, special-capability, breathable, moisture-controlling, anatomical-support, pressure-evenizing, “mattress overlay” intended to be placed on top of, and used in conjunction with, an underlying, yieldable support surface, such as that provided by a mattress, for the purpose of furnishing “direct”, pressure-evenizing under-support for a substantially bed-ridden person. It is specifically designed, as will be explained more fully below, with a thickness suitable, with appropriate, yieldable under-support, for handling persons weighing up to about 250-lbs. It is definitively not designed to be used alone as a support on top of any rigid, underlying surface; nor is it intended to be a “stand-alone” support structure, such as a mattress, per se. Where heavier persons need to be accommodated, this may be done, as will be explained more fully below, by placing the overlay on top of an additional, barium, under-support structure.

[0003] Accordingly, the herein-proposed overlay, as will be developed further herein, has an important, intentional, preferred quality of relative thinness preferably (no more than about 1-inches), and this important thinness quality militates against its utilization respecting the “not-designed-for” uses just mentioned. The term “bed-ridden” as used herein as a “person characterization” is intended broadly to include a wide range of differently convalescing persons who may spend significant amounts of extended, body-support time not only specifically in hospital beds, but also in conjunction with other bed-like mattress structures.

[0004] Speaking more specifically about the invention, and about its remarkable, demonstrated capability, it, the proposed “mattress overlay”, has as its special purpose the dramatic minimization, and in many instances the complete prevention, of the onset and development of decubitus ulcers (sores)—medical conditions that lead to dangerous and potentially lethal injuries which come from long-term body-rest/support conditions. Accordingly, the overlay of the present invention is naturally, and particularly, well suited for placement on top of conventional, long-term, person/patient-support mattresses, such as hospital-bed mattresses. While such a hospital-bed setting clearly presents an ideal use environment for the present invention, the defining term “mattress overlay” is intended herein to refer to any overlay structure constructed in accordance with the special and unique features of the present invention which may be shaped, sized, etc., for use not only on top of an underlying, conventional mattress structure, per se, but also in other similar environments where nonambulatory people, such as convalescing patients, may lie recurrently supported for long periods of time. The above-expressed concept of “direct”, underlying, person support, while it could (and can) include the concept of direct-to-skin contact support, herein more typically means support which is furnished, for example, “directly through” clothing (such as pajamas, a hospital gown, etc.), through a bed sheet, or through some combination of these things.

[0005] Regarding the above-mentioned special purpose of the present invention, it is now, and has been for some time, well recognized that the medical issue involving the development of decubitus ulcers in bed- ridden, etc., patients, often those people who are still in the environment of a hospital recovering from some medical event or condition, is an extremely serious problem—a problem which has recently caught the significant negative attention of medical-institutional (and related) insurance agencies who have come to recognize that prevention of the development of such ulcers is, in fact, quite possible, though through conventional approaches very challenging. This “negative attention” has translated itself, among other things, into agency refusals to offer/provide relevant insurance coverage. While the just-mentioned term “quite possible” is indeed true, real prevention—that is, effective real prevention—heretofore has been almost prohibitively expensive because of the fact that such prevention has, in reality, required substantial, frequent, personnel-intensive, one-to-one, or more-to-one, personal attendance to the changing of the resting “positions” of “bed- ridden” persons at risk.

[0006] The decubitus ulcer problem is recognized today as being one of the most serious problems facing hospital and medical-care facilities, and these skilled care facilities are openly waging a fierce battle with state and federal agencies and insurance companies over who should pay the enormous costs in the treatment of this “new epidemic.”

[0007] In this setting, the prior art, of which we are aware, that has been aimed at addressing the “decubitus-injury” problem is rich with purportedly effective, proposed approaches for resolving it. In practice, none appears to be particularly successful or satisfactory, owing, as we perceive it, to the significant and apparent failure to grasp a full understanding of the body-support environmental contact conditions which must exist if decubitus “onset” is to be avoided. The present invention is based upon, and “possesses”, this understanding, and in months of experimental use, involving thousands of “real-life” patient-support hours, and hundreds of bed- ridden patients, there has not been one single instance of decubitus-injury onset.

[0008] Notable, known, patent-related pieces of this prior art are identified herein immediately below:


[0010] While these prior-art approaches address, and attempt to tackle with resolution, certain technical medical issues and conditions that can lead to the development of decubitus injury (we will hereinafter use for such an injury the term “decubitus ulcer”), clearly taking aim, in the bargain, so to speak, at successfully minimizing costly medical-personnel attention to at-risk individuals, and repeating with emphasis what we have said above, as far as we can tell, no one has
successfully developed a truly effective support structure and/or methodology which has the capabilities of substantially eliminating, in most instances, the likelihood that such a decubitus ulcer will develop.

[0011] The present invention dramatically changes this situation. While readings and study of this prior, when compared with a reading of the present invention disclosure may appear at first glance, and on certain points, to reveal only subtle differences, in reality these differences, in terms of solving the problem of decubitus onset, are anything but subtle. Put another way, these differences “make the difference”!

[0012] While there are probably many issues that are usefully addressable in terms of preventing decubitus ulcers, the three, key considerations which we specially recognize in the methodology and structure of the present invention involve: (a) (1) avoiding even very short-term (minutes) of high applied anatomical pressure, (2) at all times pressure-evenizing the contact-loading characteristics which define how the anatomy of a bed-ridden patient is supported, and (3) specifically producing a loading condition, static and dynamic, whereby there exist substantially no notably high-pressure points (preferably none exceeding about 32-mm Hg, and even more preferably not exceeding about 20-mm Hg), and definitively no conditions involving a projecting portion of the person’s anatomy (i.e., a protuberance) bottoming out against either a non-yielding, or relatively non-yielding, underlying support surface, or in any manner significantly raising (de-evenizing) anatomical support pressure; (b) dealing effectively with the handling (removing) of moisture which may develop in the contact interface between a person’s anatomy and the underlying support structure, and (c), very importantly, providing effective, ventilating airflow (more broadly, gas flow) in the region immediately beneath the contact supported anatomy so as to avoid the development of hot-spots and overheating, and especially recognizing that those portion of a supported anatomy, such as bony prominences, which create notable, downward “indentations” in an underlying support structure should be offered proportionally larger access to air (gas) flow.

[0013] Stressing this just-identified, third, airflow-associated concern, and repeating with attention-commanding emphasis the “proportionally” greater airflow comment just made above, it is especially relevant that the points/areas/regions of underlying anatomical support which must deal with the mentioned, notable, anatomical protuberances, and especially with pronounced (i.e., relatively “sharp”) protuberances, be designed to furnish enhanced rather than more constricted airflow. Put another way such protuberance-support areas are the ones that potentially define the greatest risk for decubitus-ulcer development, and as we have discovered, are the areas where the most robust ventilating airflow needs to exist. Generally speaking, the greater the size and/or “sharpness” of the protuberance, and thus the greater and the deeper and the more angular the resulting support-surface indentation, the greater the need for enhanced airflow.

[0014] Unfortunately, known and proposed prior art manners of attacking the decubitus-ulcer problem do not recognize this special, anatomical-protuberance-support-observation of ours, and failing that observation, actually propose supposedly problem-resolving body-support structures and associated methodologies which exacerbate the airflow problem associated with protuberance support by reacting to downward protuberances with either no attention paid to airflow, or even worse, increased constriction to airflow.

[0015] With this background in mind, the present invention, in its structural character, takes the form of an anatomical pressure-evenizing mattress overlay including (a) a dynamic-response, preferably uniform-thickness core expance having spaced, upper and lower, surfaces and a perimetal edge extending between these surfaces, formed of a 100% open-cell, uniform-density compressible and flowable, viscoelastic foam, and having a “relaxed-state” volume in the overlay which is prestressed, by being about 8-10% compressed, to create a pre-compression condition in the expance, and (b) an elastomeric, moisture-resistant, gas-breatheable vinyl coating, which is load-transmissively, interfacially bonded to the entirety of the outside surface area of the core expance to function as a dynamically-responsive unit with the expance, with this coating possessing a “relaxed-state”, internal, prestressed tension condition which is responsible for the prestressed compression condition in the core expance. The term “relaxed-state” herein is used to refer to the conditions of the components (two) making up the pad when the pad is in a non-use situation.

[0016] The core expance is specifically and preferably formed of a specific-character, solid-phase, single-component, single-density, polyurethane material, shaped with its upper and lower surfaces substantially equidistant (i.e., the core expance has preferably a uniform thickness) to give the overlay, as a whole, a substantially uniform thickness of no more than about 1-inches, with the coating having a contributing thickness throughout of only about 0.015-inches.

[0017] For important structural and performance reasons which will be explained later herein, the coating is formed preferably with fifteen, approximately 0.001-inches thick, cured, sublayers, spray-applied, one over another, under circumstances where the “previously applied”, next-spray-receiving layer is still wet and not yet cured. This layer-generating approach produces, structurally, a final, cured, layered coating having, between all next-adjacent sublayers, what we refer to structurally herein as being finally cured, but initially wet, interfacial surfaces of joiner. We have found that this special type of interfacial joiner structure enhances not only the air/gas breathability of the overall coating, but also, importantly, the controlled shrinkage of the coating to produce the desired level of coating-internal tension, and core-expance-internal compression. The detailed description of the invention which follows below will describe fully the importance attached to the matter of core-expance-material flowability, coating tension, core-expance compression, and coating-core-expance mechanical binding to one another.

[0018] The overlay, per se, which is elongate and generally planar in nature, has no preferential upper or lower end, and no preferential top or bottom face, or side. It can, accordingly, confidently be placed with any suitable orientation on an appropriate supporting under-structure.

[0019] The overlay structure of the invention further includes, for the coating-covered core expance, a removeably fittable/installable, generally form-fitting, allover composite-fabric jacket having an upper-surface portion formed of a selected, lower-friction material, and a lower-surface portion formed of a selected, higher friction material. The lower-friction material is formed of a woven polyester fabric, and the higher-friction material is formed of a polyurethane-
coated, polyester-knit fabric. The term “composite-fabric” is used herein to refer to the differentiated-fabric-material character of the jacket.

[0020] From a methodologic general perspective, the invention involves a method for furnishing pressure-evened, dynamic-reaction support for the anatomy including (a) supporting the anatomy with a 100% open cell, polyurethane, viscoelastic foam, and following such supporting, and within the supporting foam, reacting therein to both static and dynamic, anatomical-unevenness-produced indentations in the foam to expand and contract foam cell-openness size, whereby deeper and sharper foam indentations result in greater cell-openness size.

[0021] These and other features and advantages offered by the present invention will become more fully apparent as the detailed description which now follows is read in conjunction with the accompanying drawings.

DESCRIPTIONS OF THE DRAWINGS

[0022] FIG. 1 is a simplified, isometric view of an anatomical pressure-evening mattress overlay constructed in accordance with a preferred and best-mode embodiment of the present invention resting upon a fragmentarily shown hospital-bed mattress, and with a portion of one corner of the illustrated overlay broken away to illustrate details of internal construction.

[0023] FIG. 2 is a larger scale, fragmentary, cross-sectional view taken generally along the line 2-2 in FIG. 1.

[0024] FIG. 3 is an even larger-scale, fragmentary illustration of the region generally embraced by the two curved arrows 3-3 in FIG. 2.

[0025] FIG. 4 is a simplified, fragmentary view, drawn on about the same scale which is employed in FIG. 2, illustrating anatomical, load-bearing response of the overlay of FIGS. 1-3, inclusive, and especially showing how the dynamic-response core of the overlay of the present invention responds to such loading.

[0026] FIG. 5 is a simplified, isometric view, drawn on about the same scale as that which is employed in FIG. 1, illustrating an installable/removable fabric jacket having differentiated upper and lower jacket portions, designed, in a form-fitting fashion, to receive, and to be employed with, the overlay structure of FIGS. 1-4, inclusive.

DETAILED DESCRIPTION OF THE INVENTION

[0027] Turning attention now to the drawings, and referring first of all to FIGS. 1-3, inclusive, indicated generally at 10 is a preferred and best-mode embodiment of an anatomical, pressure-evening mattress overlay constructed in accordance with the present invention. Overlay 10 herein has an overall thickness of about 1-inches (a preferred maximum thickness), a lateral width of about 36-inches, and a length of about 75-inches. Overlay 10 is formed, basically, from two different components, or portions, including a single-piece, dynamic-response core expance 12, and an elastomeric, air-breathable, moisture-resistant coating 14 which, as will shortly be explained, is load-transmissively (mechanically), interfacially (face-to-face) bonded to the entirety of the outside broad-planar and edge surface area of expance 12.

[0028] In FIGS. 1 and 2, overlay 10 is shown resting upon a hospital-bed mattress of conventional construction shown generally and fragmentarily only at 16 in these two drawing figures. As has been mentioned earlier herein, the mattress overlay of this invention need not necessarily be used in the setting of a conventional, hospital, bedding mattress, but may also be used, appropriately perimetrically shaped, to fit into other environments involving convalescing patients. In all instances, it is important that the mattress overlay of this invention be supported upon a mattress-like support, or other, similar, suitably yieldable understructure in order to prevent core expance 12 from bottoming out.

[0029] In this context, the about 1-inches thickness proposed herein as being preferable for the core expance has been chosen for several reasons, one of which is that, when properly under-supported, and as above described, it will readily handle a person weighing about 250-lbs, and will also successfully deal, without bottoming out, with notably projecting, angular portions of the anatomy even involving persons of such weight. Under circumstances where an especially heavy person, for example someone who weighs more than about 250-pounds and up to about 450-lbs, is to be supported in accordance with practice of the invention, it is important that the overlay not be placed upon a hard and non-yielding undersurface, or be used alone as a mattress with stiff under-support. Such conditions could easily lead to bottoming out. Rather the overlay should be placed on top of some auxiliary, underlying, bariatric, yieldable supporting structure.

[0030] In addition to the mattress overlay as a whole having a preferred thickness of about 1-inches in order to prevent a bottoming out situation, another important reason for choosing an overlay thickness limited to about 1-inches is that this is a thickness which works well to assure maximum availability of the significant air-breathability capabilities of the selected overlay components.

[0031] According to one very important feature of the present invention, core expance 12 is formed of a 100% open-cell, single-density, viscoelastic foam most preferably made from the product known as #5010 CF Visco, polyurethane, Domfoam made by Domfoam International, Inc. in Montréal Quebec, Canada. This foam is both compressible and flowable. Significantly, this foam which has been chosen for the core expance has another, very important, internal structural character whereby, under changing compression-pressure conditions, it exhibits a compressive-deflection vs. compression-force curve which includes an extremely linear region over which a relatively wide change in compressive deflection is accompanied by what turns out to be an anatomically insignificant (i.e., only slightly perceptible) change in compression pressure. This feature plays a very important role in assuring evenized support pressure applied statically and dynamically to the underside of a supported anatomy, notwithstanding the presence of, say, any bony anatomical protrusions.

[0032] For a reason which will now be explained, and as has already been mentioned above, core expance 12, within the overall structure of overlay 10, is in a pre-stressed compressed condition, with a “relaxed-state” compression internally of about 8-10%. This compression is brought about by virtue of the presence of allower overcoating by coating 14 which is a multi-sublayered, sprayed-on vinyl coating prepared with an overall thickness of about 0.015-inches from a vinyl material preferably that made and sold by Plasti Dip International in Blaine, Minn. under the identity Miraculon PDF-830. As was mentioned earlier, coating 14 is prepared with fifteen 0.001-inches thickness layers in a special manner to ensure two of several important features of the overcoating, one of which is that special inter-sublayer joiner exists...
between each of the sprayed-on sublayers to improve air-breathability of the coating, and another of which is to create a coating which, when completed, demonstrates a controlled shrinkage which is responsible for placing core expance 12 into compression, and the coating into a prestressed, tensed condition.

[0033] Directing attention for a moment to FIG. 3, here a fragment of the fifteen-sublayer construction of coating 14 is illustrated. In this figure, one can see several of these sublayers, including a final outer sublayer 14a, a next adjacent sublayer 14b, and in interfacial bond 14c which lies between sublayers 14a, 14b. This interfacial bond is referred to herein as "initially wet", interfacial surfaces of joiner. With core expance 12 prepared appropriately with the appropriate dimensions, coating 14 is then applied in fifteen, successive spraying operations wherein the very thin vinyl sublayers that ultimately make up the entirety of coating 14 are applied, one after another in a succession whereby each "next-adjacent" sublayer is sprayed onto the receiving sublayer under circumstances with the vinyl material in the latter (i.e., the receiving sublayer) still in a wet and not fully cured state. This important preparation consideration results in the resulting structural joiner which develops in the interfacial region between the individual sublayers in coating 14 offering improved breathability in the final structure of coating 14, and further, promoting appropriately controlled shrinkage of coating 14 as a whole to create the different pre-stressed compression and tension conditions mentioned above for the core expance and the coating, respectively.

[0034] Importantly, thin application of the first-to-be-sprayed-on sublayers in coating 14 causes the coating as a whole to bonds robustly mechanically (in a manner which we refer to as load-transmissively) to the entire outside surface area of the core expance, with the result that the localized regions of joiner of the core expance and the coating function essentially as a unit everywhere within the overlay.

[0035] Adding reference now to FIG. 4 in connection with FIG. 1, this bonding condition produces an “in-use" action, extremely important in the behavior of overlay 10, wherein expansive stretching of the coating, such as that which occurs, for example, when the anatomy, and particularly a sharp, anatomical protrubenance thereine, depresses the overlay support surface (see arrow 18 in these two drawing figures), pulls on the bonded core expance, and causes (a) core-openness size in that pulled-on and resultingly expanded, core-expance region to enlarge, and (b) airflow openness in the coating to increase locally, thus immediately promoting increased air-flow capability and activity in that region. Prestress compression in the core expance importantly aids in this action, since that compression urges the core expance to swell non-resistively, and expand. When the protuberance represented by arrow 18 engages the overlay, and with understanding that things are purposely illustrated exaggeratedly in FIG. 4, it produces a significant depression 14A in coating 14, and a matching depression in the upper surface of core expance 12. Given the modest thickness of the core expance, this depression “telegraphs” to the immediate underside of the expance to produce the gentle downward bulging in coating 14 shown at 14B.

[0036] This “depression/bulging” condition is characterized, of course, by an expanding and stretching of the coating at the 14A, 14B locations therein, and attendant increasing of the there-local airflow permeability of the coating. This expanding and stretching causes related, outward, lateral “dragging” of the bonded core expance, aided in that “dragging” by the relaxation of compression in that expance. The squeezing which results in the core expance between locations 14A, 14B produces slight, lateral, outward flowing of the expance as indicated by arrows 20, 22, with outwardly flowed core expance-material represented in the two, angular, lightly shaded region of that expance shown at 24, 26.

[0037] It is these air-management features of the invention, promoted by relative thinness in the overall overlay, by the mechanical bondedness which exists between the core expance and the coating, and the pre-compression conditions extant in the core expance and coating, respectively, which cause the overlay to adapt needed anatomical-support airflow in a manner whereby those supported areas of the anatomy which should receive enhanced airflow in the context of being protected against “decubitus onset” do receive such enhanced treatment. This adaptation behavior is dynamic, in the sense that changes in supported anatomy position are followed appropriately and instantly in the context of most-needed airflow availability.

[0038] Prior art structures that are known to us have no such capability for offering this important decubitus-injury-minimizing behavior. In many instances, unfortunately, prior art structures often respond to support indentation in a harmful manner which closes off support-offering airflow capability the deeper/larger the indentation which exists.

[0039] Turning attention now to FIG. 5, indicated generally at 28 is a removable/fittable/installable, generally form-fitting, allow composite-fabric, freely air/gas-breathable jacket having an upper/surface portion formed of a selected, lower-friction material, and a lower/surface portion formed of a selected, higher friction material, which jacket may be used under certain circumstances now to be explained as a receiving jacket for overlay 10. This jacket is especially useful in circumstances where it is desired that the lower side, effectively, of the overlay have a higher-frictioning quality so that slippage on top of an underlying support structure, such as a hospital-bed mattress, cannot easily occur, and at the same time that the upper side, effectively, of the overlay have a notably lower-friction quality so that a patient lying on the overlay may easily be adjusted in position by gentle sliding on the overlay if and when it becomes necessary to change patient position. Accordingly, jacket 28 is formed with differentiated-material upper and lower surface portions 30, 32 which furnish these differentiated frictioning qualities.

[0040] More specifically, upper surface, lower-friction portion 30 is formed of a freely air/gas-breathable, woven, polyester fabric, made by Global Textile Partners based in Gloversville, N.Y., and identified as TF-64 Polyester. This material very adequately provides for a low-friction surface next to the skin or bedding/ment material, and helps to minimize friction and shear forces on the skin. Additionally, it aids caregivers by allowing for easier sliding transfers of patients who are unable to reposition themselves. Further, it also provides a high-rate wicking material next to or near the skin—a feature which aids in removal of potentially problem-generating moisture.


[0042] These two particular materials and their respective manufacturers have been selected preferably because of the fact that these specific materials function very well for the
intended purposes just expressed above. Those skilled in the art will recognize that other, similar, friction-character materials may be employed, so long as these materials collectively do not impede in any appreciable way the intended airflow capability of overlay 10.

Thus, a unique mattress overlay structure, and a related methodology, aimed with a very particular focus on helping to resolve the decubitus ulcer/injury problem have thus been illustrated and described herein, with certain variations and modifications suggested. Among the important factors relating to resolving this very dangerous and widespread kind of injury, namely, (a) paying close attention to furnishing support for the anatomy with an overall, evenized pressure which falls within a certain, identified range of pressures, (b) managing moisture withdrawal from the interface between the overlay support structure and the anatomy, and (c) extremely importantly, furnishing adequate cooling airflow to the supported anatomy, all are dramatically dealt with by the present invention. This “dramatically dealt with” comment is strikingly supported by the fact that, as was mentioned earlier herein, in various, “real-life”, trial settings wherein many patients-support hours have been monitored in the testing of this invention, there has not occurred a single onset of a decubitus injury.

As has been pointed out with great particularity, the unique structure of the present mattress overlay includes a special core foam material which is completely 100% open-celled in nature, and which is nominally under compression, coated by a very thin, moisture-resistant, gas-breathable elasticomeric layer which is bonded tenaciously (interfacially, mechanically bonded) to the entire surface of core foam. This unique collaborative union of structures results in the occurrence of a very special performance regarding anatomically-cooling airflow, wherein the deeper the indentation produced in the overlay by a portion of the body supported on it, the greater the “effective openness” of both the supporting core foam material and the overlay material, a behavior which directly, proportionately enhances airflow in the region, or regions, of such indentation, or indentations.

Accordingly, while a preferred and best mode embodiment of, and manner of practicing, the present invention have been illustrated and described herein, and certain variations and modifications suggested, we appreciate that other variations and modifications may be made without departing from the spirit of the invention, and it is our intention that all of the claims to invention will be construed as covering all such other variations and modifications.

We claim:
1. An anatomical pressure-evenizing mattress overlay comprising
a dynamic-response core exppanse having spaced, upper and lower, surfaces and a perimetral edge extending between said surfaces, formed of a 100% open-cell, compressible and flowable, viscoelastic foam, and having a relaxed-state volume in the overlay which is prestressed, and about 8-10% compressed, thus to create a pre-compression condition in the expance, and (2) an elastomeric, moisture-resistant coating, load-transmissively bonded to the entirety of the outside of said expance to function as a dynamically-responsive unit with the expance, and possessing a relaxed-state internal prestressed tension condition.
2. The overlay of claim 1, wherein said core expanse exhibits a compressive-deflection vs. compression-force curve which includes an extremely linear region over which a relatively wide change in compressive deflection is accompanied by what turns out to be an anatomically insignificant change in compression pressure.

3. The overlay of claim 1, wherein said core expanse is specifically form of a polyurethane material.

4. The overlay of claim 1, wherein said upper and lower surfaces are, allover, substantially equidistant.

5. The overlay of claim 1, wherein said core expanse has a thickness throughout of about 1-inches, and said coating has a thickness, throughout, of about 0.015-inches.

6. The overlay of claim 1, wherein said coating is formed with fifteen, approximately 0.001-inches thick cured, curable initially wet vinyl sublayers initially having, between next-adjacent sublayers, wet, interfacial surfaces of joinder.

7. The overlay of claim 1 which further comprises, for said coating-covered core expanse, a removablel fittable/installable, generally form-fitting, allover composite-fabric jacket having an upper-surface portion formed of a selected, lower-friction material, and a lower-surface portion formed of a selected, higher friction material.

8. The overlay of claim 7, wherein said lower-friction material is formed of a woven polyester fabric.

9. The overlay of claim 7, wherein said higher-friction material is formed of a polyurethane-coated, polyester-knit fabric.

10. The overlay of claim 9, wherein said lower-friction material is formed of a polyurethane-coated, polyester-knit fabric.

11. An anatomical pressure-evenizing mattress overlay comprising a core expanse of single-density, 100%, open-cell, compressible and flowable, polyurethane, viscoelastic foam, and a gas-breathable, moisture-resistant, elastomeric coating extending over the entirety of the surface area of said core expanse, and interfacially, mechanically bonded to said surface area, said coating being everywhere in tension and placing said core expanse everywhere in compression.

12. A method for furnishing pressure-evenized, dynamic-reaction support for the anatomy comprising supporting the anatomy with a 100% open cell viscoelastic foam, and following said supporting, and within the supporting foam, reacting therein to both static and dynamic, anatomical-uneveness-produced indentations in the foam to expand and contract cell-openness size, whereby deeper and sharper indentations result in greater cell-openness size.

13. The method of claim 12, wherein said reacting includes laterally stretching and laterally flowing regions of the foam adjacent such an indentation.

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