CLAIMS

1. A diagnostic support program that analyzes images of an organ of a human and displays analysis results, the program causing a computer to execute a process comprising:

processing of acquiring a plurality of frame images;

processing of calculating ~~an element~~part of waveforms that show periodic ~~change that characterizes the state of an~~ movement specific to the organ between each of the frame images, or frequencies specific to the organ between each of the frame images based on the pixel values between each of the frame images;

processing of Fourier transforming the change of the image between each of the frame images;

processing of extracting ~~spectra~~a spectrum within a certain band, including ~~spectra~~a spectrum corresponding to ~~the elements of~~part of waveforms that show periodic ~~change that characterize the state of the~~movement specific to an organ, or frequencies specific to an organ, from the spectrum obtained after the Fourier transform;

processing of performing inverse Fourier transform on the spectrum extracted from the certain band; and

processing ~~to output~~of outputting each image after performing the inverse Fourier transform.

2.— The diagnostic support program according to claim 1, further comprising:

processing of dividing ~~an image~~images of an organ of a human ~~organ~~ into a plurality of block ~~regions~~areas and calculating a change in the image of the block ~~region~~areas in each of the frame ~~image~~images;

wherein the processing of Fourier transforming performs Fourier transform ~~process Fourier transforms~~on the change in the image of each of the block ~~region~~areas in each of the frame ~~image~~images.

3.— A diagnostic support program that analyzes images of an organ of a human and displays analysis results, the program causing a computer to execute a process comprising:

processing of acquiring ~~multiple~~a plurality of frame images;

processing of calculating ~~an element~~part of waveforms that show periodic ~~change that characterizes the state of an~~ movement specific to the organ between each of the frame images, or frequencies specific to the organ between each of the frame images based on the pixel values between each of the frame images;

processing of extracting pixels that change ~~according~~corresponding to ~~the frequency~~part of ~~the elements of~~waveforms that show periodic ~~change that characterize the state of~~movement specific to the organ in the ~~image with~~ images, or frequencies specific to the organ in the images by a digital filter; and

~~———~~ processing ~~to output an image~~of outputting images including the pixels extracted by the digital filter.

4.— The diagnostic support program according to claim 3, further comprising:

~~processing of~~ dividing images of an organ ~~image~~ into a plurality of block areas and calculating a change in ~~the~~an image ~~of the~~in block ~~area~~areas in each of the frame ~~image~~images; wherein

in the ~~process~~processing of extracting ~~the~~ pixels that change ~~according to the frequency of the element~~corresponding to part of ~~the~~waveforms that show periodic ~~change that characterizes~~movement specific to the organ in the images, or frequencies specific to the organ in the ~~state of the organ in the image with~~images by the digital filter, the pixels are extracted for each of the block ~~region with~~areas by the digital filter.

5.— The diagnostic support program according to

claim 1, further comprising:

processing of calculating ~~the rate~~part of ~~change of a~~waveforms that show periodic ~~change element that characterizes the state of an organ between the frame images based on the pixel values~~movement specific to the organ between each of the frame images~~;~~, or the change rate of frequencies specific to the organ between each of the frame images based on the pixel values between each of the frame images;

processing of selecting a color corresponding to ~~the rate of change of the elements of~~part of waveforms that show periodic ~~change that characterize the state of~~movement specific to the organ, or the change rate of frequencies specific to the organ; and

processing of adding the selected color on the change rate of the pixel values and displaying the ~~image~~images on a display ~~by adding the selected color to the rate of change of the pixel value~~.

6.~~—~~ The diagnostic support program according to claim 5, further comprising:

processing of dividing images of an organ~~—~~ ~~image~~ into a plurality of block areas and calculating ~~the rate of~~a change ~~of the~~rate in an image ~~of the~~in block ~~area~~areas in each of the frame ~~image~~images; wherein

in the ~~process~~processing of selecting a color corresponding to ~~the~~ part of waveforms that show

periodic movement specific to an organ, or the change rate of ~~change that characterizes the state of~~frequencies specific to the organ, the color is selected for each of the block ~~region~~areas.

7.— The diagnostic support program according to claim 2, 4 or 6, wherein

the block ~~region is~~areas are formed using the Voronoi partitioning technique.

8.— A diagnostic support program that analyzes images of ~~an organ of~~ a human body and displays analysis results, the program causing a computer to execute a process comprising:

processing of acquiring ~~multiple~~a plurality of frame images;

processing of calculating ~~an element~~part of waveforms that show periodic ~~change that characterizes~~movement specific to the ~~state of an~~ organ between each of the frame images, or frequencies specific to the organ between each of the frame images based on the pixel values between each of the frame images;

processing of defining ~~the~~an analysis range for all the acquired frame images;

processing of dividing the analysis range into ~~multiple~~a plurality of areas; and

processing of classifying each of the divided

~~regions~~areas based on the index of ~~the element of~~part of waveforms that show periodic ~~change~~movement or frequencies.

9.~~—~~ The diagnostic support program according to any one of claims 1 to 11, wherein

the change in the pixel ~~value~~values of each of the frame ~~image~~images is calculated while maintaining ~~the~~ absolute positional relationship of each pixel in ~~the~~a plurality of frame images.

10.~~—~~ The diagnostic support program according to claim 9, wherein

~~multiple~~a plurality of frame images ~~are~~is classified into ~~multiple~~ a plurality of groups, and ~~the~~a periodic ~~changes~~change that ~~characterize~~characterizes the state of ~~the~~an organ ~~are~~is calculated while maintaining ~~the~~ absolute positional relationship of each pixel in ~~the multiple~~a plurality of frame images belonging to each group.

11.~~—~~ The diagnostic support program according to claim 2, 4 or 6, wherein

a change in an image in block areas in each of the frame images is calculated in a state where relative positional relationship of pixels indicating the organ is maintained between each of

the frame images regardless of whether they are adjacent frames or not.

12.— The diagnostic support program according to any one of claims 1 to 9, 10, and 11, further comprising;

processing ~~that restores the~~of restoring transmittance changed ~~transparency~~ from the ~~transparency~~transmittance of a specific area to a constant shape in ~~a~~ frame ~~image taken~~images photographed by X-rays.

13.— The diagnostic support program according to any one of claims 1 to 9, 10, and 11, further comprising;

processing of correcting ~~the~~a signal value in ~~the region~~an area where ~~the~~a magnetic field of MRI is non-uniform in ~~the~~a frame image ~~captured~~photographed by MRI and converting it into an image obtained when ~~the~~a magnetic field is uniform.

14.— The diagnostic support program according to claim 2, 4 or 6, wherein

a change rate is calculated from aspects of a change in the entire organ between each of the frame images regardless of whether they are adjacent frames or not, and a change in an image

in the specific block areas is calculated based on the calculated change rate.

15.—The diagnostic support program according to claim ~~16~~14, wherein

the change rate changes depending on a position of block areas in the organ or is constant throughout the organ.

16.—A diagnostic support program that analyzes images of an organ of a human and displays analysis results, the program causing a computer to execute a process comprising:

processing of acquiring a plurality of frame images;

processing of calculating a periodic ~~changes~~change that ~~characterize~~characterizes the state of organs between each of the frame images based on the pixel values between each of the frame images;

processing of Fourier transforming the change of the image between each of the frame images;

processing of extracting a spectrum within a certain band including a spectrum corresponding to the frequency of movement of an organ from the spectrum obtained after the Fourier transform;

processing of performing inverse Fourier transform on the spectrum extracted from the

~~fixed~~certain band;

processing of outputting each image after the inverse Fourier transform;

processing of setting the maximum outer edge when the size of the organ is maximized;

processing of setting the minimum outer edge when the size of the organ is minimized;

processing of calculating the coefficient of the outer edge of an organ of another size in each image using the maximum outer edge and the minimum outer edge;

processing of displaying the waveform corresponding to the coefficient of the outer edge of the organ in each ~~image~~of the images and the control points of the waveform on a graph; and

processing of changing the coefficient of each image by changing the position of the control point.

17.—The diagnostic support program according to claim ~~18~~16, wherein
a pixel average value of the image of the organ is displayed on the graph.

18.—The diagnostic support program according to claim 16 or 17, wherein

the image of the organ is displayed juxtaposed with the graph.

19.—A diagnostic support program that analyzes images of an organ of a human and displays analysis results, the program causing a computer to execute a process comprising:

processing of acquiring a plurality of frame images;

processing of dividing images of an organ of a human in each of the frame images into a plurality of block areas;

processing of calculating a change in an image in block areas in each of the frame images;

processing of Fourier-transforming the value of the change in each of the block areas; and

processing of classifying each area by colors based on a composition ratio of frequency components.

20.—A diagnostic support program that analyzes images of an organ of a human and displays analysis results, the program causing a computer to execute a process comprising:

processing of acquiring a plurality of frame images;

for each pixel in a specific frame image, processing of extracting pixels having coordinates different from each ~~pixel~~of the pixels in the next and subsequent frame images and calculating ~~an~~

~~element~~part of waveforms that show periodic ~~change that characterizes the state of~~ movement specific to an organ, or frequencies specific to the organ between each of the frame images;

processing of Fourier transforming the ~~elements of periodic changes that characterize~~ change of the ~~state~~image between each of the ~~organ~~frame images;

processing of extracting a spectrum within a certain band including a spectrum corresponding to ~~a periodic change element that characterizes the state of~~part of periodic waveforms specific to an organ, or frequencies specific to an organ ~~from the spectrum obtained after the Fourier transform~~;

processing of performing inverse Fourier transform on the spectrum extracted from the ~~fixed~~certain band; and

processing of outputting each image after the inverse Fourier transform.

21.—A diagnostic support program that analyzes images of an organ of a human and displays analysis results, the program causing a computer to execute a process comprising:

processing of acquiring a plurality of frame images;

for each pixel in a specific frame image, processing of extracting pixels having coordinates

different from each pixel in the next and subsequent frame images and calculating ~~an element~~part of waveforms that show periodic ~~change that characterizes~~movement specific to an organ, or frequencies specific to the ~~state~~organ between each of the ~~organ~~frame images;

processing of extracting pixels that change ~~according~~corresponding to ~~the frequency~~part of ~~the elements of~~waveforms that show periodic ~~change that characterize the state of the~~ movement specific to the organ in the ~~image with~~ images, or frequencies specific to the organ in the images by a digital filter; and

processing of outputting ~~an image~~images including the pixels extracted by the digital filter.

22.~~—~~ A diagnostic support program that analyzes images of an organ of a human and displays analysis results, the program causing a computer to execute a process comprising:

processing of acquiring a plurality of frame images;

for each pixel in a specific frame image, processing of extracting pixels having coordinates different from each ~~pixel~~of the pixels in the next and subsequent frame images and calculating ~~an element of~~part of waveforms that show periodic

~~change that characterizes the state of the~~ movement specific to an organ, or frequencies specific to the organ between each of the frame images;

processing of defining an analysis range for all the acquired frame images based on ~~the elements of~~part of waveforms that show periodic ~~changes that characterize the state of~~ movement specific to an organ between each of the frame images, or frequencies specific to the organ between each of the frame images;

processing of calculating the change rate ~~of change~~ between each of the frame images in the analysis range;

~~processing of selecting a color corresponding to the rate of change between each frame image;~~

processing of selecting a color corresponding to the change rate between each of ~~change between each~~the frame ~~image;~~images; and

processing of adding the selected color and displaying the ~~image~~images on a display ~~with the selected color.~~.